INTERNATIONAL CIVIL AVIATION ORGANIZATION
ASIA AND PACIFIC OFFICE

REPORT OF THE SEVENTH MEETING OF THE FANS IMPLEMENTATION TEAM, SOUTH-EAST ASIA (FIT-SEA/7)

Fukuoka, Japan

30 January to 1 February 2008

The views expressed in this Report should be taken as those of the Meeting and not of the Organization

Approved by the Meeting
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PART I – HISTORY OF THE MEETING

1. Introduction

1.1 The Seventh Meeting of FANS Implementation Team, South-East Asia (FIT-SEA/7), graciously hosted by Civil Aviation Bureau Japan (JCAB), Ministry of Land, Infrastructure, Transport and Tourism (MLIT) was held at ACROS FUKUOKA conference hall in Fukuoka, Japan from 30 January to 1 February 2008.

2. Attendance

2.1 The meeting was attended by 34 participants from Japan, Malaysia, Singapore, Thailand, Viet Nam, IATA, IFALPA, ARINC and SITA. A list of participants is at **Appendix A** to this report.

3. Officers and Secretariat

3.1 Mr. Hiroshi Inoguchi, Director for International Policy Coordination, Air Traffic Services (ATS) Systems Planning Division, ATS Department, JCAB, MLIT served as the Rapporteur of the meeting. Mr. Kyotaro Harano, Regional Officer ATM from the ICAO Asia and Pacific Office, Bangkok acted as the Secretary for the meeting.

3.2 Mr. Inoguchi also undertook the administrative work for the meeting.

4. Opening of the Meeting

4.1 Mr. Inoguchi opened the meeting and, on behalf of JCAB, welcomed all participants to Fukuoka as well as to the meeting. He expressed his appreciation to Air Traffic Control Association Japan (ATCA-J) for their assistance in organizing the meeting, and to the Fukuoka Air Traffic Management Center (ATMC) for the arrangement of a site visit by participants on 1 February 2008.

4.2 Mr. Inoguchi referred to a long history of data link related activities in Japan, including the transition to the regular operations in the Fukuoka Flight Information Region (FIR) in 2006 and the application of 50 NM longitudinal separation minimum using data link. Japan and the United States have been working towards the implementation of 30/30 separation minima in the North and Central Pacific airspace. With regard to the data link implementation in the Southeast Asia, he recalled that JCAB had been actively involved in the implementation of data link in the Ho Chi Minh Flight Information Region (FIR) since 2006 as part of ASEAN-Japan cooperation, and was pleased to observe the significant progress to date. He recognized the importance of FIT-SEA/7 in terms of assessment of the Phase 2 trial in the Ho Chi Minh FIR and a subsequent Go/No-Go decision for the regular operation, and wished the meeting success in making good recommendations to advance the implementation.

4.3 Mr. Harano, on behalf of Mr. Mokhtar A. Awan, Regional Director, ICAO Asia and Pacific Office welcomed all the participants to FIT-SEA/7. He expressed appreciation to JCAB in hosting that significant meeting at the excellent venue of ACROS FUKUOKA, and to Fukuoka Air Traffic Management Centre (ATMC) for accommodating them for the visit to the centre on the last day of the meeting.

4.4 Mr. Harano highlighted that FIT-SEA/7 would review the Phase 2 trial that started in August 2007 and decide if the States can move on to the regular operations. The review would be based on the reports of Singapore and Viet Nam, and the technical analysis of data by the Central Reporting Agency (CRA) - Japan. He was looking forward to some good news about the data link performance that would enable data link services provided to the South China Sea area to move on to the regular operations. In regard to the CRA service, he thanked again Japan for their continuous efforts and generous offer to provide the service free of charge. He wished the meeting every success.

5. Documentation and Working Language

5.1 The working language of the meeting and the language for all documentation were English. Nine Working Papers, seven Information Papers and three presentations were presented to FIT-SEA/7. The list of papers and presentations is shown at **Appendix B** to this report.

REPORT OF THE MEETING

Agenda Item 1: Adoption of Agenda

Election of Rapporteur

1.1 To support the activities of the Team, the meeting unanimously requested Mr. Inoguchi to continue to act in the role of the Rapporteur.

Adoption of Agenda

1.2 The meeting reviewed the provisional agenda. The meeting agreed and adopted the agenda as follows:

Agenda Item 1: Adoption of Agenda

Agenda Item 2: Review South China Sea ADS/CPDLC Operational Trial

Agenda Item 3: Review ADS/CPDLC Implementation

Agenda Item 4: Central Reporting Agency

Agenda Item 5: Data link Guidance Materials

Agenda Item 6: Update Task Lists

Agenda Item 7: Any other business

Agenda Item 8: Date and Venue for the next meeting

1.3 The meeting noted the Terms of Reference (TOR) for FIT-SEA as follows:

Composition of FANS Implementation Team (FIT)

The FANS Implementation Team (FIT) will consist of representatives from aircraft and ancillary equipment manufacturers, airlines, data communication service providers (DSP), ATS providers, IATA, ICAO, IFALPA and IFATCA.

FIT-SEA Terms of Reference (TOR)

The FANS Implementation Team for the South East Asia region (FIT-SEA) shall be responsible for system configuration and oversee the end-to-end monitoring process to ensure the FANS 1/A systems are implemented and continue to meet their performance, safety, and interoperability requirements.

FIT-SEA shall:

a) Determine the common operational architecture to support CPDLC and ADS;

b) Support the implementation and operational benefits of CPDLC and ADS;

c) Authorize and coordinate system testing and operational trials;

d) Develop interim operational procedures to mitigate the effects of problems until such time as they are resolved;

e) Review de-identified problem reports and determine appropriate resolution;

f) Monitor the progress of problem resolution; and

g) Assess system performance based on information in Central Reporting Agency periodic reports.

Preparation of Reports

The Central Reporting Agency (CRA) will report, as required, to FIT-SEA. FIT-SEA will report to the South-East Asia ATS Coordination Group (SEACG). ICAO will submit reports to appropriate sub-groups of APANPIRG.

(Adopted by the 11th Meeting of SEACG, 2003)

Agenda Item 2: Review South China Sea ADS/CPDLC Operational Trial

ATS Data Link Performance of Singapore

2.1 Singapore presented statistics to show data link performance for January to December 2007. The performance exceeded the requirements in the *FANS Operations Manual* (FOM). Singapore presented an analysis of the data link traffic by aircraft types, airlines and traffic distribution over the South China Sea routes. There were some anomalies over three days in November 2007 and this was attributed to some technical issues in the downstream ATS unit. Viet Nam explained to the meeting the cause of this, and reassured the meeting that remedial measures were being taken to prevent a re-occurrence. The Rapporteur thanked Singapore for the detailed presentation, which is attached as **Appendix C** to this report.

Results of the ADS/CPDLC Phase 2 Trial and the Proposed Plan for Transition from the Trial to the Operational Implementation by Viet Nam

2.2 Viet Nam reported that they had conducted the ADS/CPDLC Phase 2 trial on six oceanic RNAV routes of L625, L628, M765, M768, N500 and N892 in the Ho Chi Minh FIR for all aircraft equipped with FANS-1/A. Phase 2 started at 0001 UTC on 2 August 2007 with duration of six months.

Result of the ADS/CPDLC Operational Trial Phase 2 in the Ho Chi Minh FIR:

- ADS/CPDLC services were available for 24 hours and conducted with all FANS-1/A equipped aircraft.
- The received flight plan indicated that the daily number of flights was 159 and most of them had data link equipment.
- In average, success rate of uplinks during Phase 2 was 98 %.
- In average, there were 3 246 messages per day, of which:
  - 95 % of downlinked messages took time of about one minute, and 99 % took about two minutes.

- 95 % of uplinked messages took time of one minute, and 99 % took about six minutes.

- Uplink success rate: 98 %.

- Success rate of the auto data link transfers from Ho Chi Minh Area Control Centre (ACC) to Singapore ACC was 95.2 %.

- Periodic Status Reports: There were 20 Periodic Status Reports including 10 reports of data link transfer success rate.

- Problem Reports (PRs): There were two PRs which had been forwarded to CRA during Phase 2.

- Ground system: The system in Ho Chi Minh ACC worked satisfactorily.

- ACARS link: To overcome VSAT problems during sun-induced outage, Viet Nam had discussed with ARINC and both agreed to establish a land link for implementation by April 2008.

Conclusion

With the results of the Phase 2 trial, Viet Nam reported that:

- data link provided by ARINC was stable to serve for ADS/CPDLC systems;

- some aircraft, although equipped with ADS/CPDLC systems, did not logon to participate in the trial;

- air traffic control transfer coordination between Ho Chi Minh and Singapore ACCs met the ATM requirements;

- after the two phases of the operation trial, Viet Nam was able to implement ADS/CPDLC regular operations in the Ho Chi Minh FIR; and

- Viet Nam prepared for all aspects of human resource, operational manual, ATM systems in order to put ADS/CPDLC into operation in the Ho Chi Minh FIR.

Proposed plan for ADS/CPDLC operational implementation in the Ho Chi Minh FIR:

- Starting time: from 0001 UTC 10 April 2008.

- Scope: on oceanic RNAV routes L625, L628, L642, M765, M768, M771, N500 and N892 for all of FANS-1/A equipped aircraft, of which L642 and M771 were newly added to the implementation of Phase 2.

- Vietnam had prepared a draft AIP Supplement on ADS/CPDLC operation in the Ho Chi Minh FIR which was to be published on 29 February 2008. (See **Appendix D** to this report)

- Training programmes for air traffic controllers and technical staff of Ho Chi Minh ACC would be conducted.

- The SLOA on transfer of ADS/CPDCL between Ho Chi Minh and Singapore ACCs would be revised and signed after proposed plan being approved.

- Viet Nam requested JCAB to continue to assist Viet Nam in regard to the CRA services and JCAB agreed to this.

- After 18 months of implementation, Viet Nam would consider expanding the scope of ADS/CPDLC implementation to other ATS routes.

2.3 Viet Nam proposed transition from the trial to the operational implementation.

Report of FIT-SEA CRA

2.4 CRA-Japan, as FIT-SEA CRA designated by FIT-SEA, provided the meeting with a report concerning the status of ATS data link system performance and the summary of PRs, in accordance with the TOR that was agreed at FIT-SEA/3 (November 2005, Bangkok). All the data and information were submitted from the Civil Aviation Authority of Singapore (CAAS) and the Civil Aviation Administration of Viet Nam (CAAV), and covered the five month period of the Phase 2 trial up to December from August 2007. A PowerPoint presentation is attached at **Appendix E** to this report.

System Performance

2.5 FIT-SEA CRA used the format of data analysis as provided by Singapore while applying the regular format of data analysis for Viet Nam, and presented the following analyses:

- CPDLC downlink performance;
- CPDLC uplink performance;
- Total number of CPDLC uplink messages;
- CPDLC uplink message success rate; and
- Auto transfer success rate.

2.6 The system performance in Singapore and Viet Nam satisfied the FOM criteria in all elements, but the CPDLC downlink performance in Viet Nam only marginally met the criteria although it indicated a trend of gradual improvement from July to December 2007.

Problem Reports (PRs)

2.7 Although PRs do not always cover all deficiencies experienced in the data link operations, the meeting noted that 13 PRs had been submitted to the CRA through CAAS and CAAV since FIT-SEA/6 (May 2007, Hanoi), and there were only 2 PRs received during the Phase 2 trial. As a result of analyses, it was found that all 13 PRs were associated with data link failure and there was no problem relating to other functions such as ADS, CPDLC and connection.

2.8 The causes of 11 PRs out of 13 were identified and considered not to be significant to data link operations or being of a temporary nature; thus the meeting agreed to close these PRs. With regard to the remaining two PRs, the CRA would continue to investigate when similar event occurs.

2.9 CRA-Japan as FIT-SEA CRA expressed appreciation to CAAS and CAAV for their cooperation and assistance in submitting data and information on a regular basis. The meeting reviewed the information contained in the FIT-SEA CRA report and acknowledged, with appreciation, the professional work undertaken by CRA-Japan.

Assessment by the Meeting of Phase 2

2.10 FIT-SEA/6 (May 2007, Hanoi) agreed that if the interim report found the Phase 2 trial was not satisfactory, the Phase 2 trial should continue until the time agreeable to all the parties concerned.

2.11 When reviewing the FIT-SEA CRA report, the meeting recognized that the CPDLC downlink performance in Viet Nam only marginally met the FOM criteria but indicated a trend of gradual improvement from July to December 2007.

2.12 Viet Nam advised the meeting that after experiencing some network problems, an additional work was commenced to improve the performance of downlink with their DSP and would be completed before April 2008. This work included the establishment of a new land link which would be used in parallel to the existing VSAT network, and should remedy the problems.

2.13 After lengthy discussions, the meeting concluded that the result of CPDLC downlink performance during the Phase 2 trial in the Ho Chi Minh FIR was operationally acceptable for ATC, and would not impose an immediate adverse effect on the data link services. The meeting also felt that the commencement of regular services in the Ho Chi Minh FIR would bring more benefits by enhancing communication and surveillance capability over the South China Sea. Thus, it was agreed that Viet Nam could complete the Phase 2 trial and commence the regular operation on 10 April 2008 as proposed.

2.14 The meeting, however, considered it more prudent that FIT-SEA/8 in May review the situation of performance improvement and the results of remedial actions undertaken by Viet Nam to ensure that the FOM criteria are met.

2.15 The meeting confirmed that Viet Nam would publish on 29 February 2008, an AIP Supplement concerning procedures for ADS/CPDLC operations in the Ho Chi Minh FIR effective 10 April 2008. The draft AIP Supplement is at Appendix D to this report. FIT-SEA/8 will review the AIP Supplement and consider incorporating the contents into AIP.

2.16 In the meantime, the meeting noted it would be required that the ADS/CPDLC performance fully meets the criteria in the FOM for the reduction of the longitudinal separation.

Agenda Item 3: Review of ADS/CPDLC Implementation

There was no discussion under this agenda item.

Agenda Item 4: Central Reporting Agency – South-East Asia

Review of RASMAG List of Competent Airspace Safety Monitoring Organizations

4.1 The meeting reviewed the 'RASMAG List of Competent Airspace Safety Monitoring Organizations' as in **Appendix F** to this report. Japan informed of the changes of the contact persons and the Secretariat undertook to report the updates to RASMAG.

Website Updates of CRA-Japan

4.2 Japan informed the meeting that CRA-Japan updated its website (http://www.crasa.cra-japan.org) on 7 January 2008 for the purpose of improving information dissemination to the stakeholders associated with IPACG FIT and FIT-SEA. All the information is de-

identified before uploaded in accordance with the TOR of CRA. Any interested party shall sign an agreement with the CRA-Japan and obtain a user ID and password from the CRA in order to access the information.

JCAB FIT Activities at IPACG27/FIT14 Meetings

4.3 Japan provided the meeting with a summary report of CRA Japan activities in the Fukuoka FIR, which was presented to IPACG FIT/14. This report is available on the IPACG website at http://www.faa.gov/ats/ato/ipacg/html.

4.4 The meeting noted that the average CPDLC Uplink Message Success Rate from September 2006 and August 2007 was 98%, which was slightly below the FOM performance criteria, while other elements met the requirements. The success rate of auto transfer of connections from the Fukuoka FIR to Oakland and Anchorage FIRs showed improvement since last reported.

Agenda Item 5: Data Link Guidance Materials

Guidance Material for the Asia/Pacific Region ADS/CPDLC/AIDC Ground Systems Procurement and Implementation

5.1 APANPIRG/18 adopted the *Guidance Material for the Asia/Pacific Region ADS/CPDLC/AIDC Ground Systems Procurement and Implementation* under Conclusion 18/5. A copy of the Guidance Material was presented to the meeting and additional copies are available from the website of the ICAO Asia/Pacific Office at http://www.bangkok.icao.int/ under the "APAC e-Documents" menu.

5.2 The Rapporteur requested that the Guidance Material be brought to the attention of the Philippines, which is hoped to participate in the trial in the South China Sea area. The Secretariat would inform the Philippines and Malaysia, which will introduce data link in the Bay of Bengal area in early 2008, of the Guidance Material together with two other guidance materials of the FOM and the *Guidance Material for End-to-End Safety and Performance Monitoring of Air Traffic Service (ATS) Data Link Systems in the Asia/Pacific Region*.

Agenda Item 6: Update Task Lists

6.1 The meeting reviewed and updated the FIT-SEA Task List as in **Appendix G** to this Report. One action item was completed and four new action items were added.

6.2 In regard to Action Item 7: compilation of data on aircraft ADS/CPDLC equipped in the trial airspace, the meeting was of view that the data should be more specifically defined in terms of the airspace and/or airways to exclude unrelated traffic from the data. The meeting agreed that this would be considered at FIT-SEA/8.

Agenda Item 7: Any Other Business

Outcomes of APANPIRG/18

7.1 The meeting noted that the 18th meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/18) was held in Bangkok, Thailand from 3 to 7 September 2007 at ICAO Asia and Pacific Office.

Operational Performance Requirements for End-To-End Satellite Communications

7.2 The United States informed ATM/AIS/SAR/SG/17 of the unreliability of the Perth Ground Earth Station (GES) which had suffered several outages over the course of the 30 NM/30 NM trials. As the Perth GES is essentially the sole GES available for most of the region, this would place significant additional message loadings onto the existing system. Doubts were expressed as to the capability of regional data link services providers to adequately carry this message load at an end-to-end performance level that was suitable for operational use, particularly with reduced separations.

7.3 In this regard, SITA informed the meeting that traffic forecasting was very important and drew attention of the meeting to the Data Link Implementation Table. Also, SITA advised the meeting that the FANS SATCOM Improvement Team and the Global Datalink Capacity Planning Group were ongoing to address SATCOM performance and assess the capability of classic aeronautical service to meet FANS requirement.

Data Link Implementation Table

7.4 Subsequently, the meeting reviewed the Data Link Implementation Table as in **Appendix H** to this report. SITA wished to obtain from customer airlines and air navigation service providers their planned FANS activities and to feed traffic forecast model to assist themselves to provide the required level of performance for their customers. If the actual traffic generated is more than predicted, customers will face severe degradation.

Consideration for Closure of IPACG FIT Following a Completion of its Work

7.5 Japan advised the meeting that the Fourteenth meeting of FANS Interoperability Team (FIT/14) of the Informal Pacific Air Traffic Control Coordinating Group (IPACG) in November 2007 discussed an outstanding issue of when and how IPACG FIT could be closed as its work progresses.

7.6 The meeting understood that IPACG FIT had met 14 times over the last eight years and significantly contributed to the progress of the implementation of data link operations based on FANS-1/A system in the North and Central Pacific. IPACG FIT would review the progress achieved, and consider its future activities, taking into account the agreed FIT TOR and the FOM definitions of FIT and CRA. Due consideration should be given to the need of continuous monitoring of data link system performance in accordance with ICAO safety provisions in Annex 11.

7.7 The meeting noted that the IPACG FIT had agreed in principle to dissolve the group provided that:

- 30/30 is implemented with a seamless transfer between Japan and USA, and its safe and stable operation is confirmed for a significant period that is agreed upon by the concerned parties, thus completing FIT's last major goal;

- the CRA/CRASA functions of data collection and problem analysis were transferred to some other body or office, and sustained as an integral part of IPACG's operation; and

- a carefully detailed FIT workload analysis was presented for transfer as needed to ensure continued service to the user community.

7.8 Japan urged the FIT-SEA to keep it in mind that the group would need to address a similar issue as work progresses in the near future.

The Second and the Third Meetings of the Western Pacific/South China Sea RVSM Scrutiny Group

7.9 The meeting reviewed the outcomes of the Second and the Third Meetings of the Western Pacific/South China Sea RVSM Scrutiny Group (WPAC/SCS RSG/2 and 3) which were convened in June and in October-November 2007, respectively, in Bangkok, Thailand. Table below summarizes the results of the airspace safety assessment, as of August 2007, in terms of the technical, operational, and total risks for the Scenario 3 in the WPAC/SCS RVSM airspace, presented by MAAR at WPAC/SCS RSG/3.

Source of Risk	Lower Bound Risk Estimation	TLS	Remarks
Technical Risk	0.63×10^{-9}	2.5×10^{-9}	Below Technical TLS
Operational Risk	5.77×10^{-9}	-	-
Total Risk	6.40×10^{-9}	5.0×10^{-9}	**Exceeds Overall TLS**

Risk Estimates for the RVSM Implementation in WPAC/SCS Airspace

Summary Report of the Ninth Meeting of FANS Implementation Team, Bay of Bengal

7.10 The Combined Ninth Meeting of the FANS Implementation Team, Bay of Bengal (FIT-BOB/9) and the Nineteenth Meeting of the Bay of Bengal ATS Coordination Group (BBACG/19) were held consecutively at ICAO Asia and Pacific Office, Bangkok, Thailand on 21 and 22, and 22 to 25 January 2008, respectively.

Review ADS/CPDLC Implementation

7.11 Malaysia informed FIT-BOB/9 that they were in the process of installing an ADS/CPDLC system at the Kuala Lumpur Area Control Centre (ACC). The system would integrate both ADS and Radar data to display multi-surveillance tracking. The training phase for ATC personnel was planned to start in the middle of March 2008 which included a limited initial trial to familiarize controllers with ADS/CPDLC data link applications for Bay of Bengal routes. This would be followed by a full H24 operational trial targeted to take effect from 0001UTC on 15 April 2008.

7.12 FIT-BOB/9 noted that the ADS/CPDLC service would be made available on a H24 basis on ATS routes A327, P628, L510, L645, N571, B466 and P574 in the Kuala Lumpur FIR and that, in due course, Malaysia would issue an AIC detailing all arrangements.

7.13 In terms of the data link operations in the Bay of Bengal area, IATA recalled that the FANS Action Team, Bay of Bengal (FAT-BOB) was established in July 1997. IATA expressed concerns about the delayed implementation of the data link in the BOB area while FIT-SEA saw excellent progress in the South China Sea area.

Data Link Operations by the Philippines

7.14 The meeting discussed the way forward for the Philippines' data link implementation. The meeting requested SEACG to consider the following:

a) in collaboration with ICAO to investigate the progress of data link implementation plan in the Manila FIR;

b) to assist the Philippines to identify the problems/difficulties hindering service provision; and

c) to request ICAO to develop suitable arrangement with agreement of the Philippines to provide necessary assistance to the data link serve implementation in the Manila FIR.

7.15 In this regard, the meeting recognized that the Manila FIR was the last integral part for the seamless data link operations in the entire South China Sea area, and formulated the following draft recommendation for consideration by SEACG/15 in May:

Draft Recommendation

That, in order for early realization of the full benefit of data link operation and the reduced longitudinal separations throughout the South China Sea airspace, the Philippines take appropriate steps for the data link service to be provided in the Manila Flight Information Region as soon as possible.

ARINC Satellite GESs Update

7.16 ARINC updated the meeting on the satellite GESs improvement. ARINC was committed to provide high quality and reliable services, and continually invested in programmes to enhance satellite communication infrastructure. The presentation is attached as **Appendix I** to this report. The meeting thanked ARINC for the presentation.

Operation of Fukuoka Air Traffic Management Center

7.17 The meeting was provided with a briefing outlining the ATMC structure, responsibilities, operational functions, etc. A facility visit to Fukuoka ATMC was conducted on 1 February 2008.

Agenda Item 8: Date and venue for the next meeting

8.1 The meeting agreed tentatively that FIT-SEA/8 would be held from 26 and 27 May 2008 at ICAO Asia and Pacific Office, Bangkok, Thailand in conjunction with subsequently held SEACG/15 which will be held from 28 to 30 May 2008.

9. Closing of the Meeting

9.1 Mr. Inoguchi, as the Rapporteur, thanked the participants for their commitment and cooperation for the constructive discussions and achievement during the meeting. He officially advised that he would no longer be able to continue serving as the Rapporteur due to his new assignment in JCAB, and mentioned that he enjoyed working in the Team since FIT-SEA/4 (July 2006, Bangkok). He wished the Team every success in the data link implementation in the South China Sea.

9.2 On behalf of the Team, Mr. Harano expressed sincere appreciation to Japan and the staff of JCAB and Fukuoka ATMC for the excellent preparations and support for the meeting. He was regretful to hear the news from Mr. Inoguchi of his stepping down from the Rapporteur. He expressed appreciation for Mr. Inoguchi's continuous efforts and strong leadership shown since FIT-SEA/4. He also thanked all delegates for their commitment, dedication and efforts to enhance the operational efficiency of air traffic services through the implementation of data link in the South China Sea.

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LIST OF TENTATIVE WORKING AND INFORMATION PAPERS

WORKING PAPERS

WP/No.	Agenda Item	Title	Presented by
1	1	Provisional Agenda – FIT-SEA/7	Secretariat
2	2	ADS/CPDLC Equipage and Participation Status in Operational Trials of ADS/CPDLC	Secretariat
3	2	- *Withdrawn* -	Secretariat
4	4	Review of RASMAG List of Competent Airspace Safety Monitoring Organizations	Secretariat
5	6	Update FIT-SEA Task List	Secretariat
6	7	Outcomes of APANPIRG/18	Secretariat
7	7	Data Link Implementation Table	Secretariat
8	2	Report on the Result of the ADS/CPDLC Operational Trial Phase 2 and the Proposed Plan for Transition from the Trial to the Operational Implementation in Ho Chi Minh FIR	Viet Nam
9	2, 4	Report of FIT-SEA CRA	Japan
10	7	Consideration for Closure of IPACG FIT Following a Completion of its Work	Japan

INFORMATION PAPERS

IP/No.	Agenda Item	Title	Presented by
1	-	List of Tentative Working and Information Papers	Secretariat
2	-	Terms of Reference of FIT-SEA	Secretariat
3	2	- *Withdrawn* -	Secretariat
4	5	Guidance Material for the Asia/Pacific Region ADS/CPDLC/AIDC Ground Systems Procurement And Implementation	Secretariat
5	7	The Second and the Third Meetings of the Western Pacific/South China Sea RVSM Scrutiny Group	Secretariat
6	4	Web Site Updates of CRA-Japan	Japan
7	4	JCAB FIT Activities at IPACG27/FIT14 Meetings	Japan
8	7	Summary Report of the Ninth Meeting of FANS Implementation Team, Bay Of Bengal (FIT-BOB/9)	Secretariat

PRESENTATION

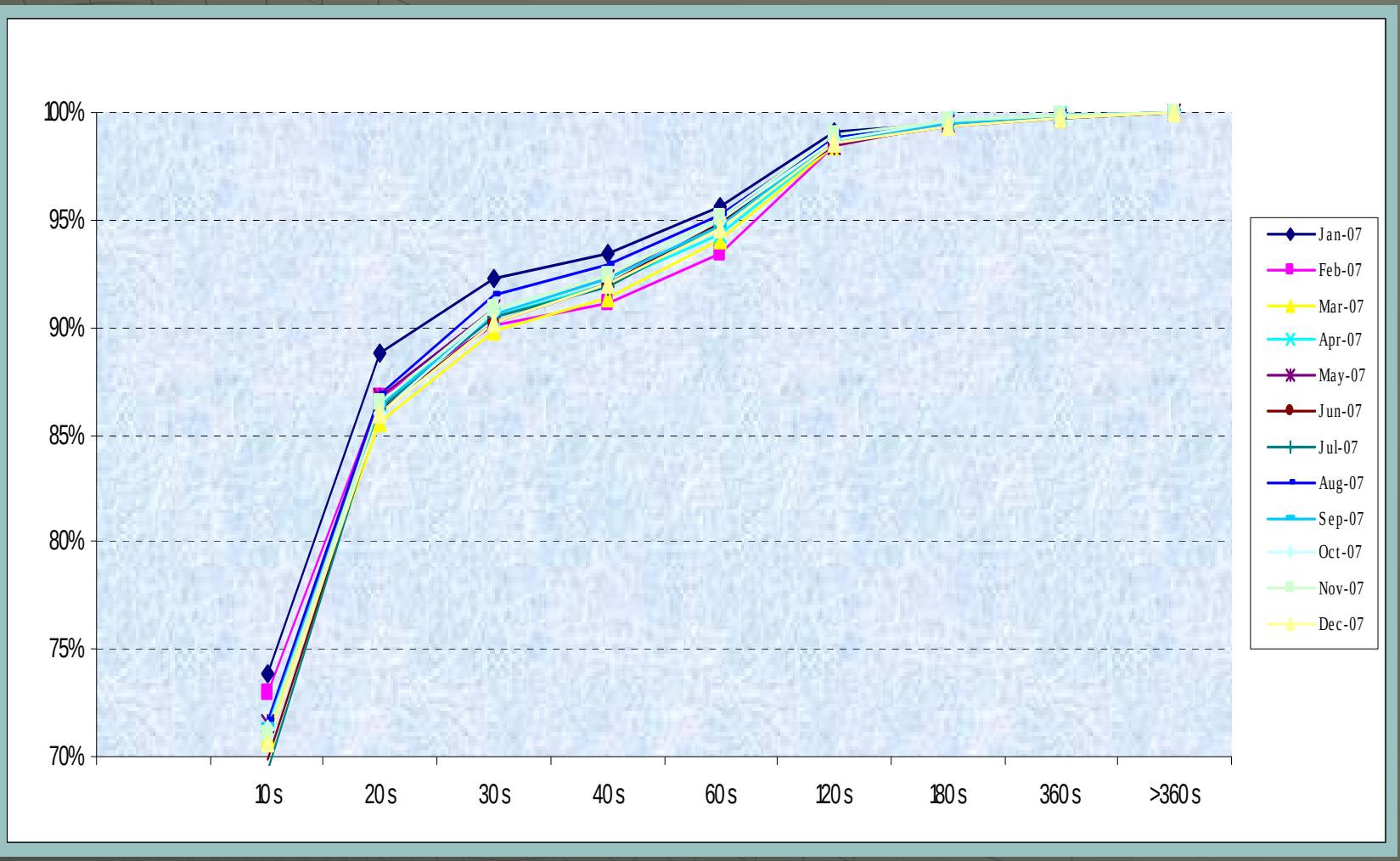
Agenda Item	Title	Presented by
2	ATS Data Link Performance	Singapore
7	ARINC Satellite GESs Update	ARINC
7	Operation of Fukuoka Air Traffic Management Center	Japan

ATS Datalink System Performance

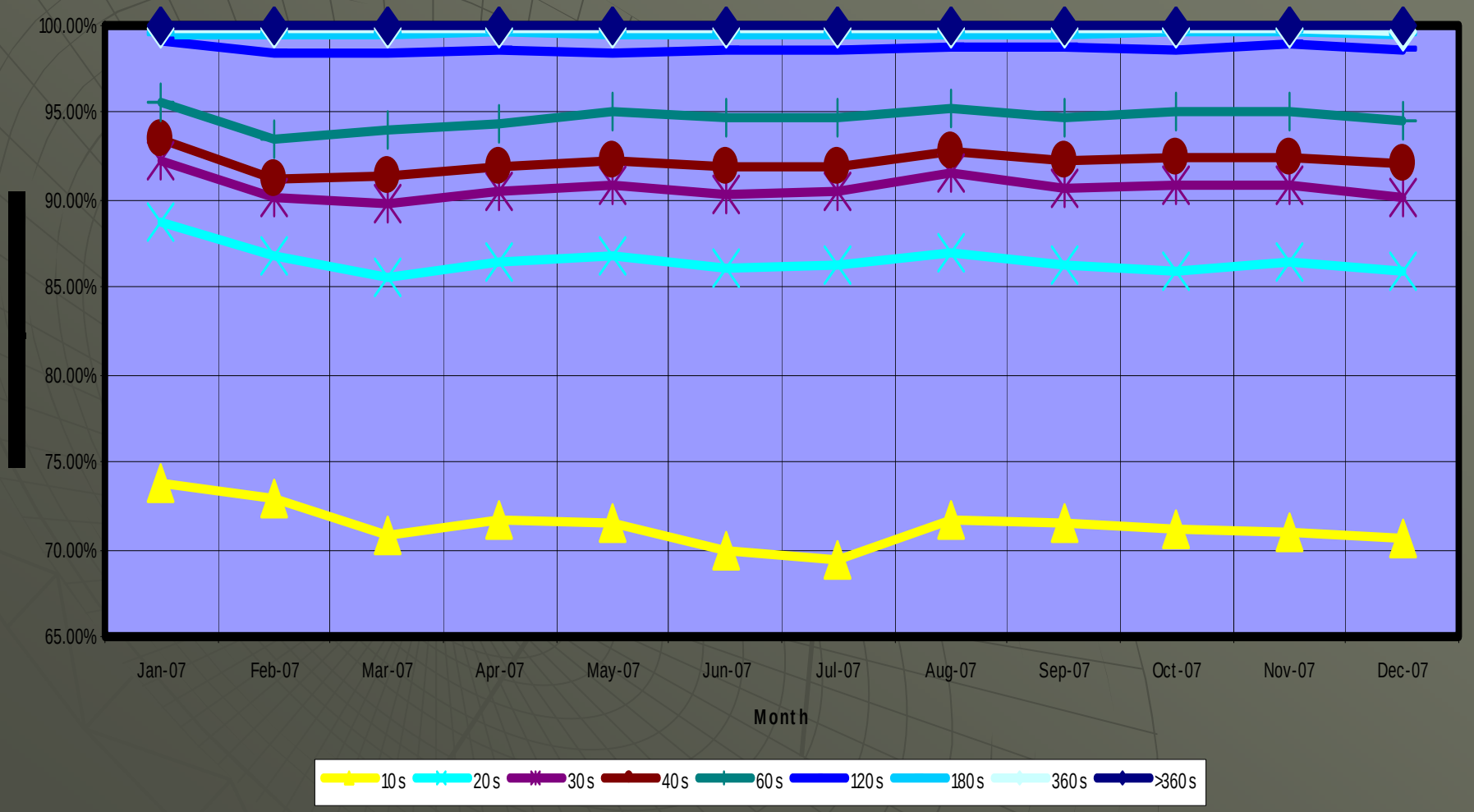
Singapore FIR

Jan – Dec 2007

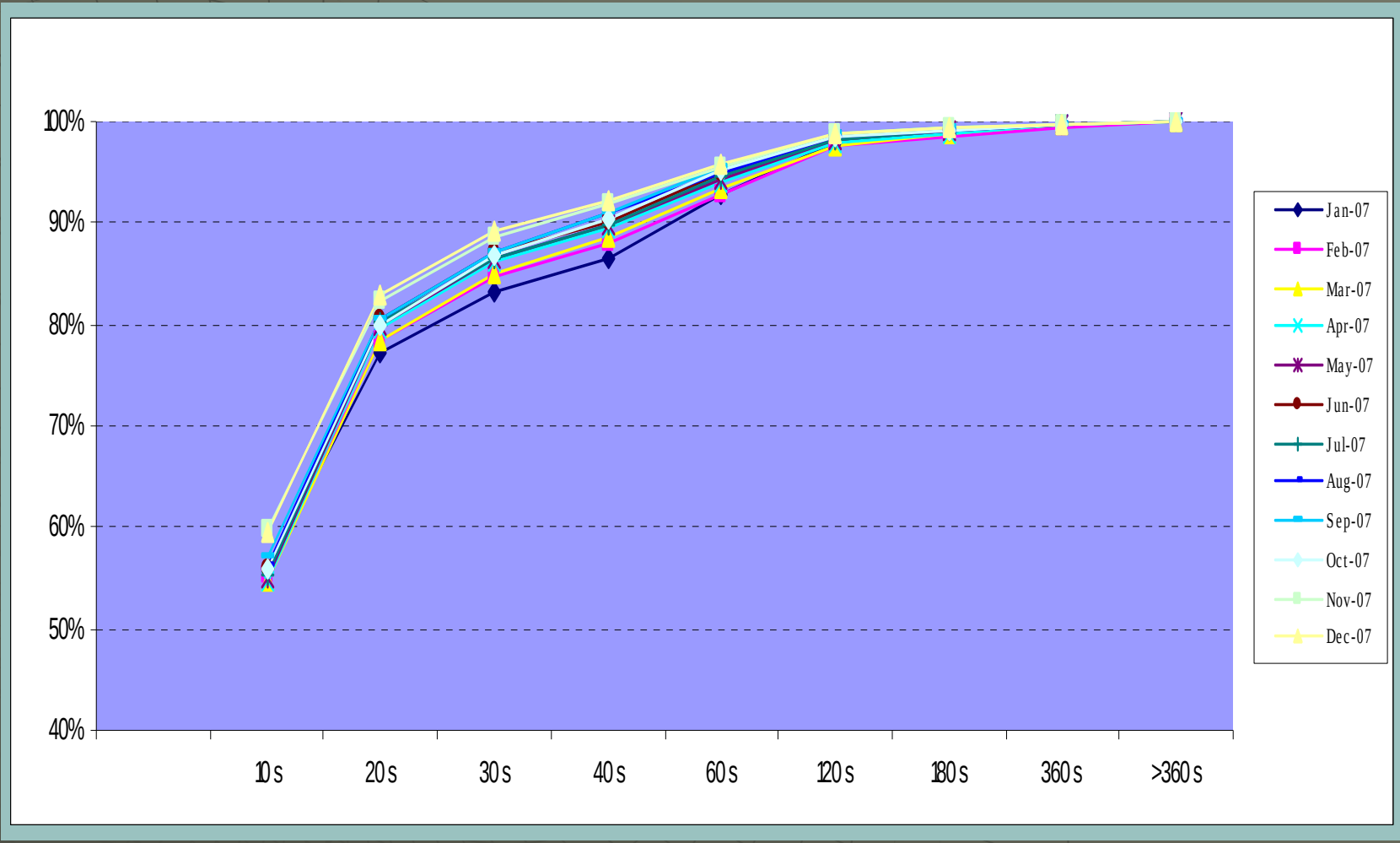
CPDLC Uplink Delivery Time



CPDLC Uplink Message Delivery Time



CPDLC Downlink Delivery Time



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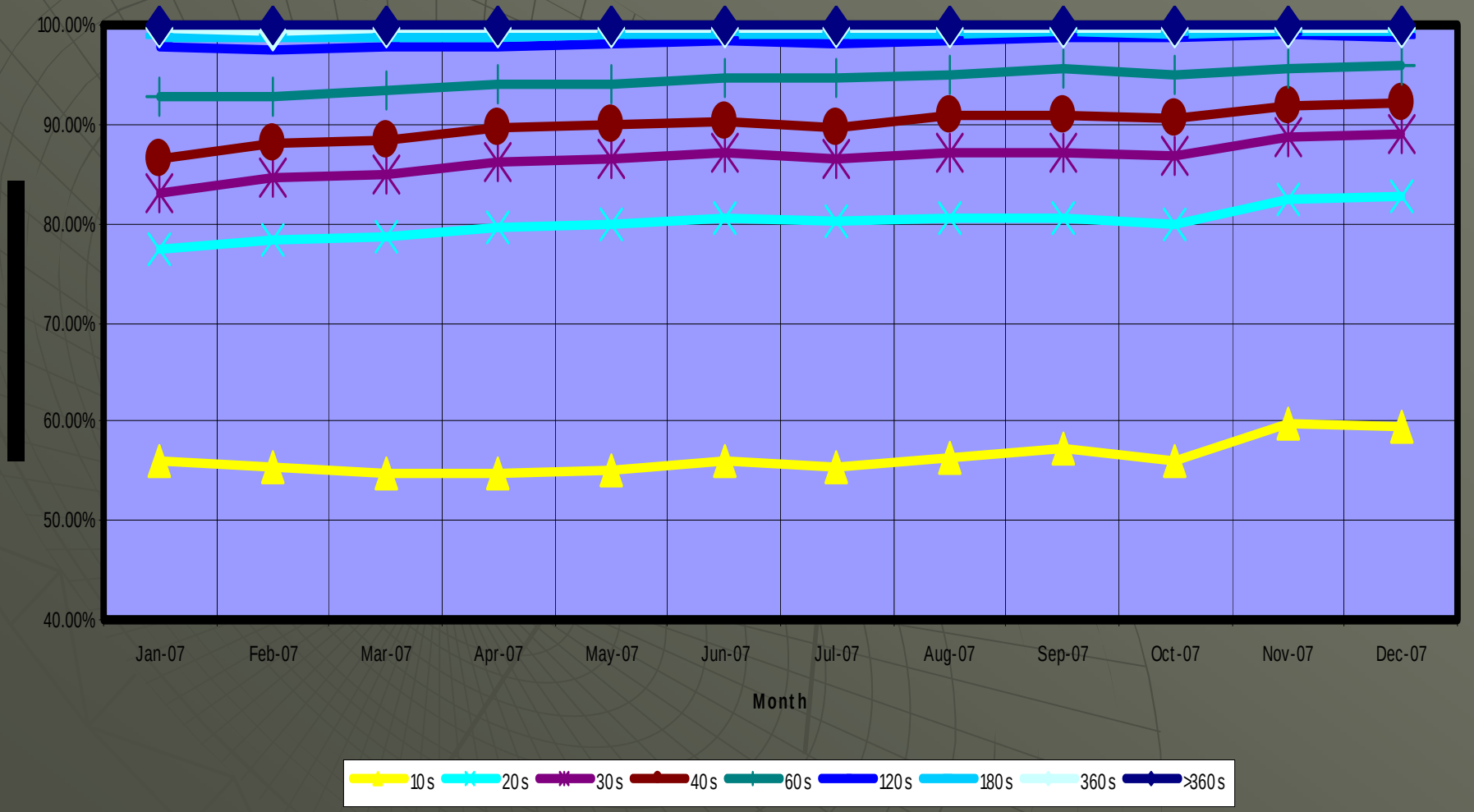
CPDLC Downlink Message Delivery Time



Civil Aviation Authority of Singapore

CPDLC Uplink Message Success Rate (Jan – Jun 07)

	Jan 07	Feb 07	Mar 07	Apr 07	May 07	Jun 07
Total number of uplink message	12,342	10,150	12,769	12,902	13,837	14,148
Total number of unsuccessful uplink message	37	16	18	17	14	31
(%)	0.30%	0.16%	0.14%	0.13%	0.10%	0.22%
Total number of successful uplink message	12,305	10,134	12,751	12,885	13,823	14,117
(%)	99.70%	99.84%	99.86%	99.87%	99.90%	99. 78%

Total number of unsuccessful uplink message : The number of cases which did not receive MAS to CPDLC uplink message = ((Total number of uplink message) – (Total number of successful uplink messages))

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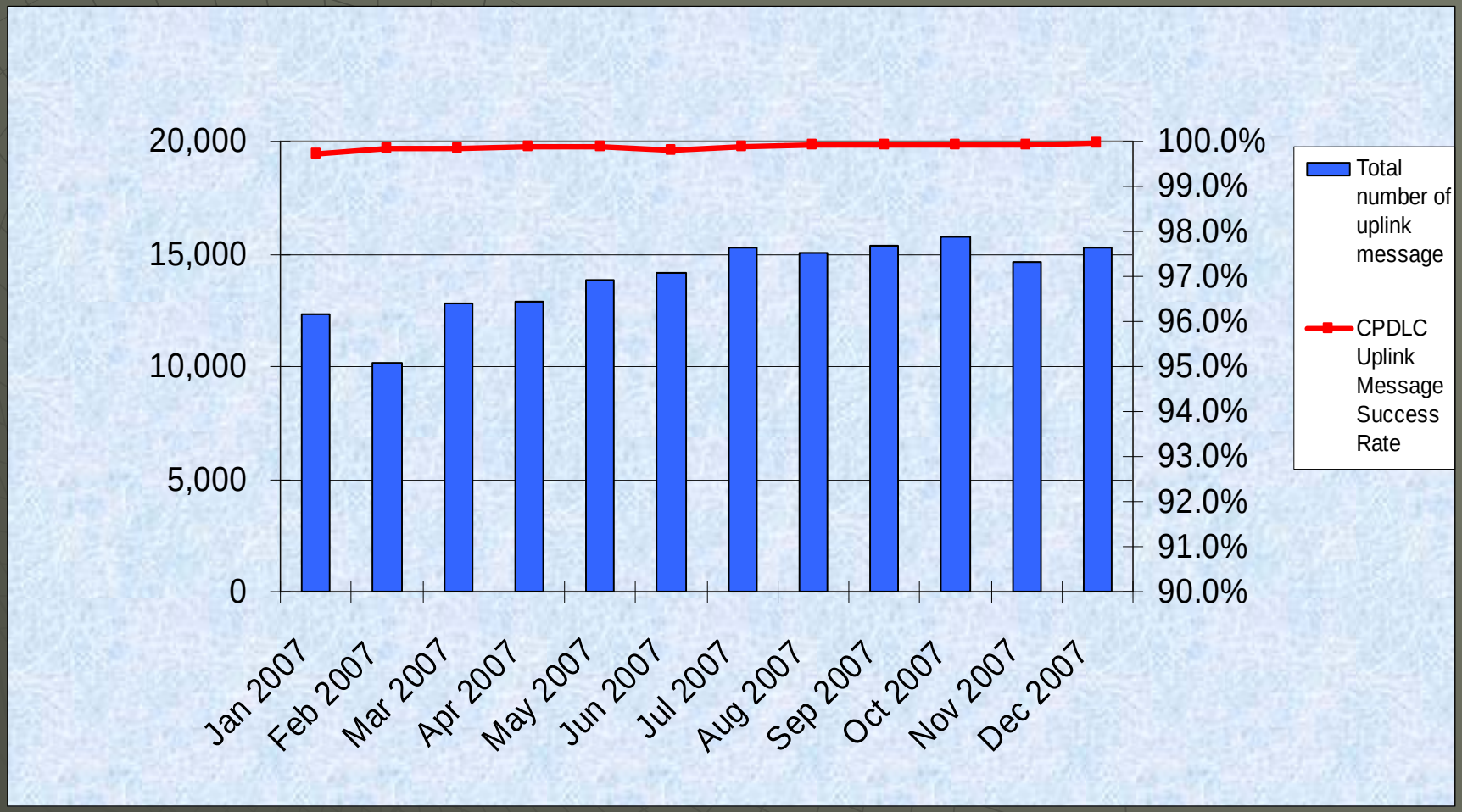
CPDLC Uplink Message Success Rate (Jul – Dec 07)

	Jul 07	Aug 07	Sep 07	Oct 07	Nov 07	Dec 07
Total number of uplink message	15,297	15,059	15,359	15,775	14,659	15,269
Total number of unsuccessful uplink message	18	14	11	10	11	7
(%)	0.12%	0.09%	0.07%	0.06%	0.08%	0.05%
Total number of successful uplink message	15,279	15,045	15,348	15,765	14,648	15,262
(%)	99.88%	99.91%	99.93%	99.94%	99.92%	99.95%

Total number of unsuccessful uplink message : The number of cases which did not receive MAS to CPDLC uplink message = ((Total number of uplink message) – (Total number of successful uplink messages))

CAAS
Civil Aviation Authority of Singapore

CPDLC Uplink Message Success Rate 2007



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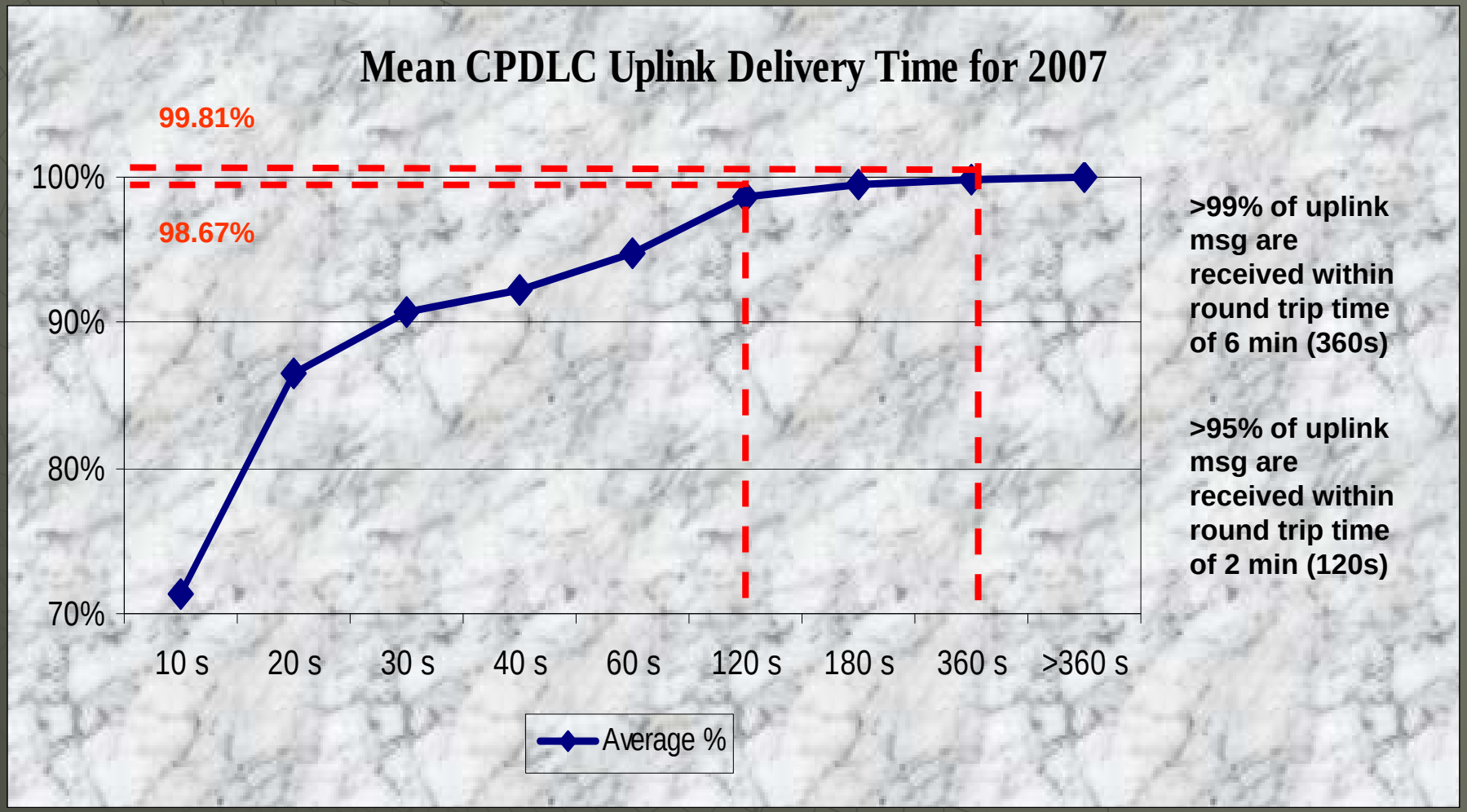
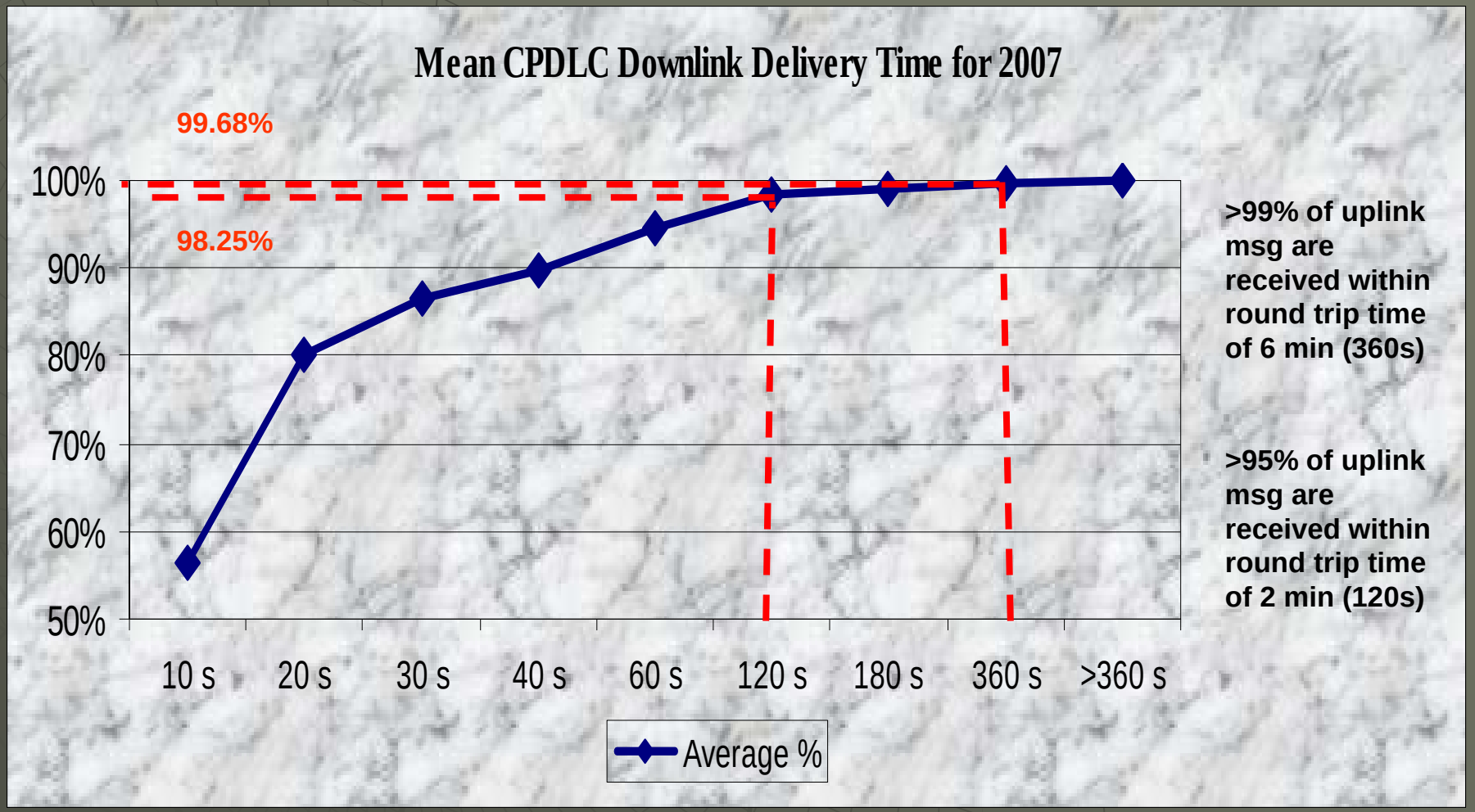
System Performance



>99% of uplink msg are received within round trip time of 6 min (360s)

>95% of uplink msg are received within round trip time of 2 min (120s)

System Performance



>99% of uplink msg are received within round trip time of 6 min (360s)

>95% of uplink msg are received within round trip time of 2 min (120s)

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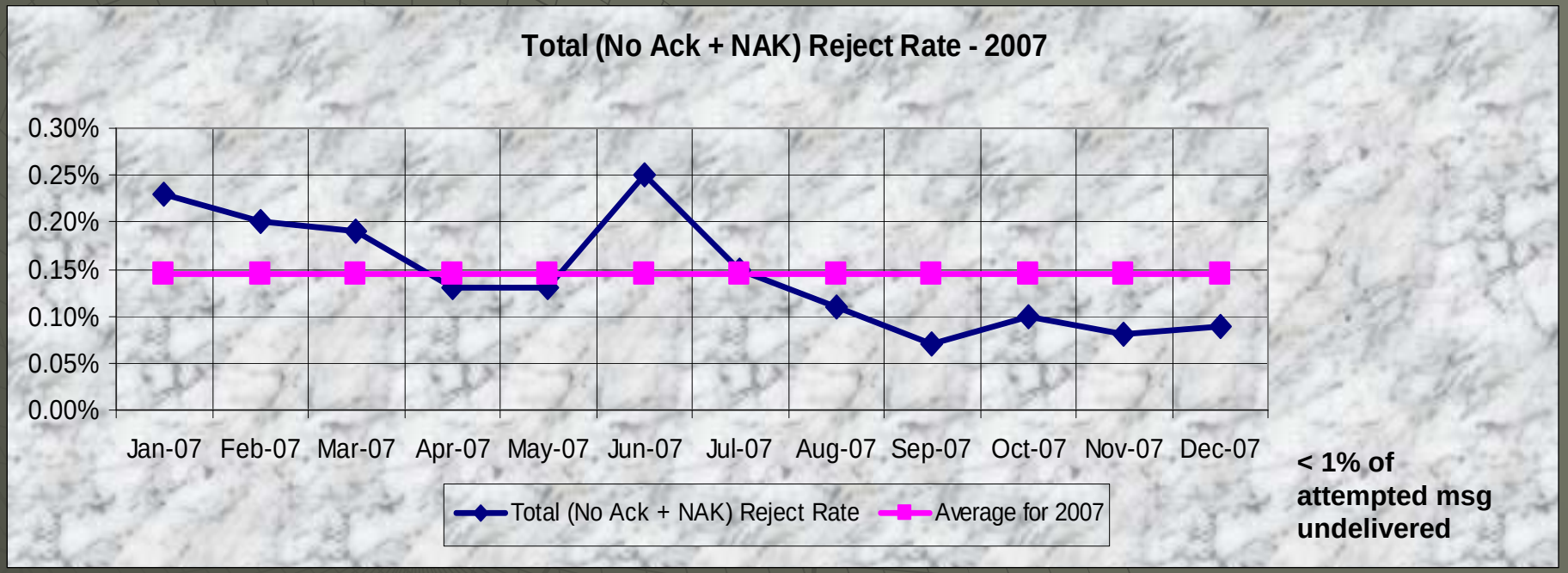
System Performance



< 1% of attempted msg undelivered

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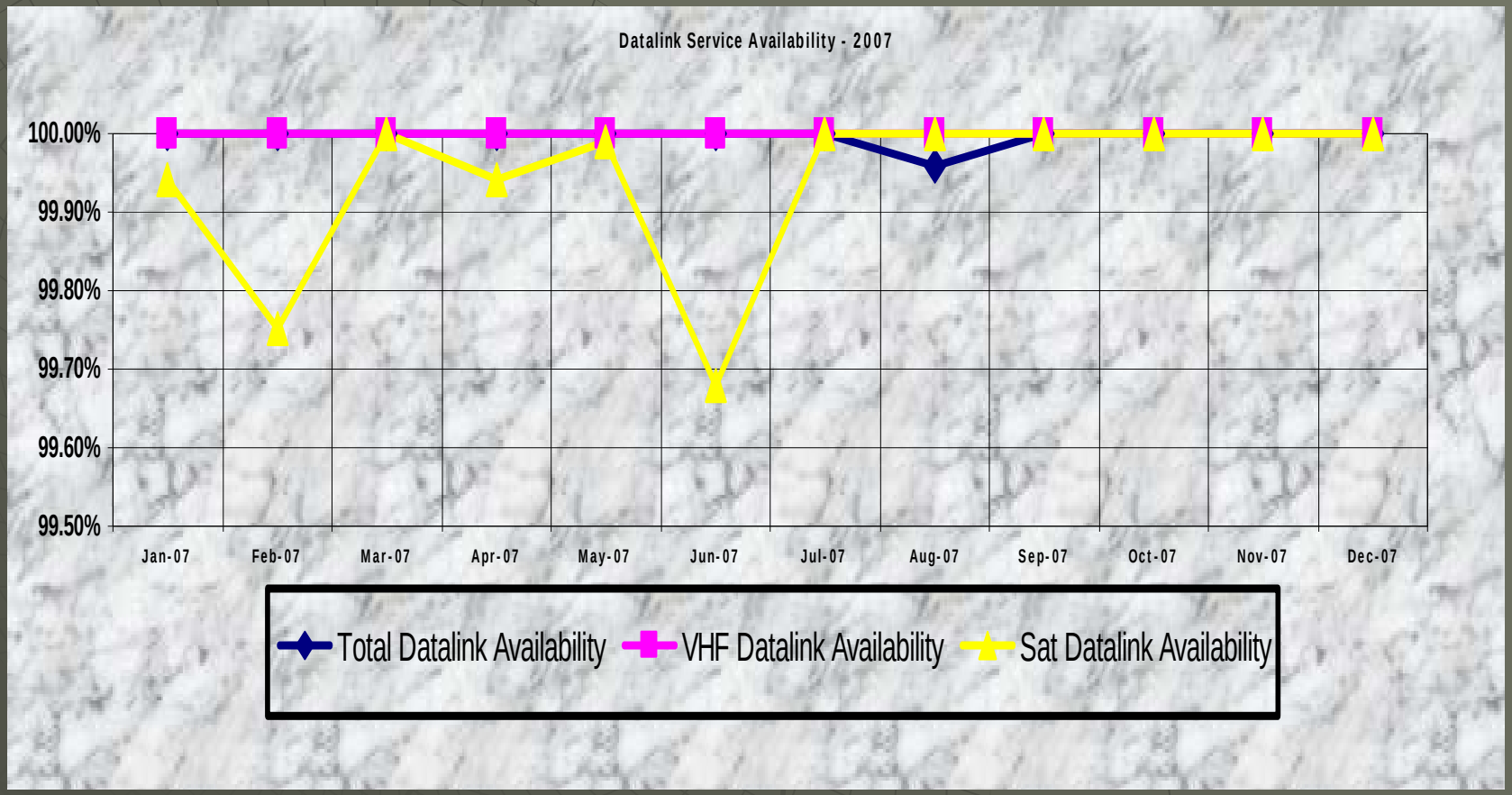
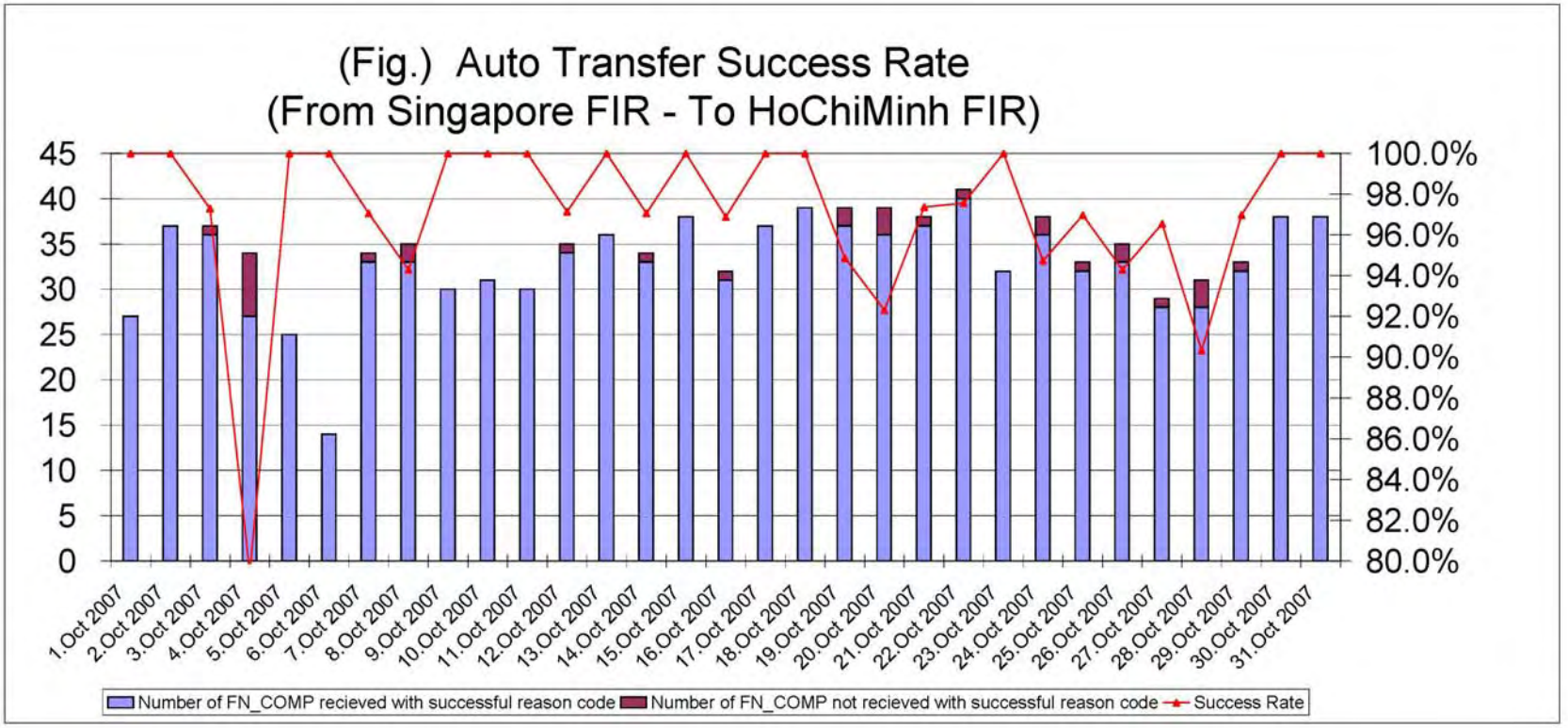
System Availability 2007



Auto transfer Success Rate Oct 07

(Table) Auto Transfer Success Rate

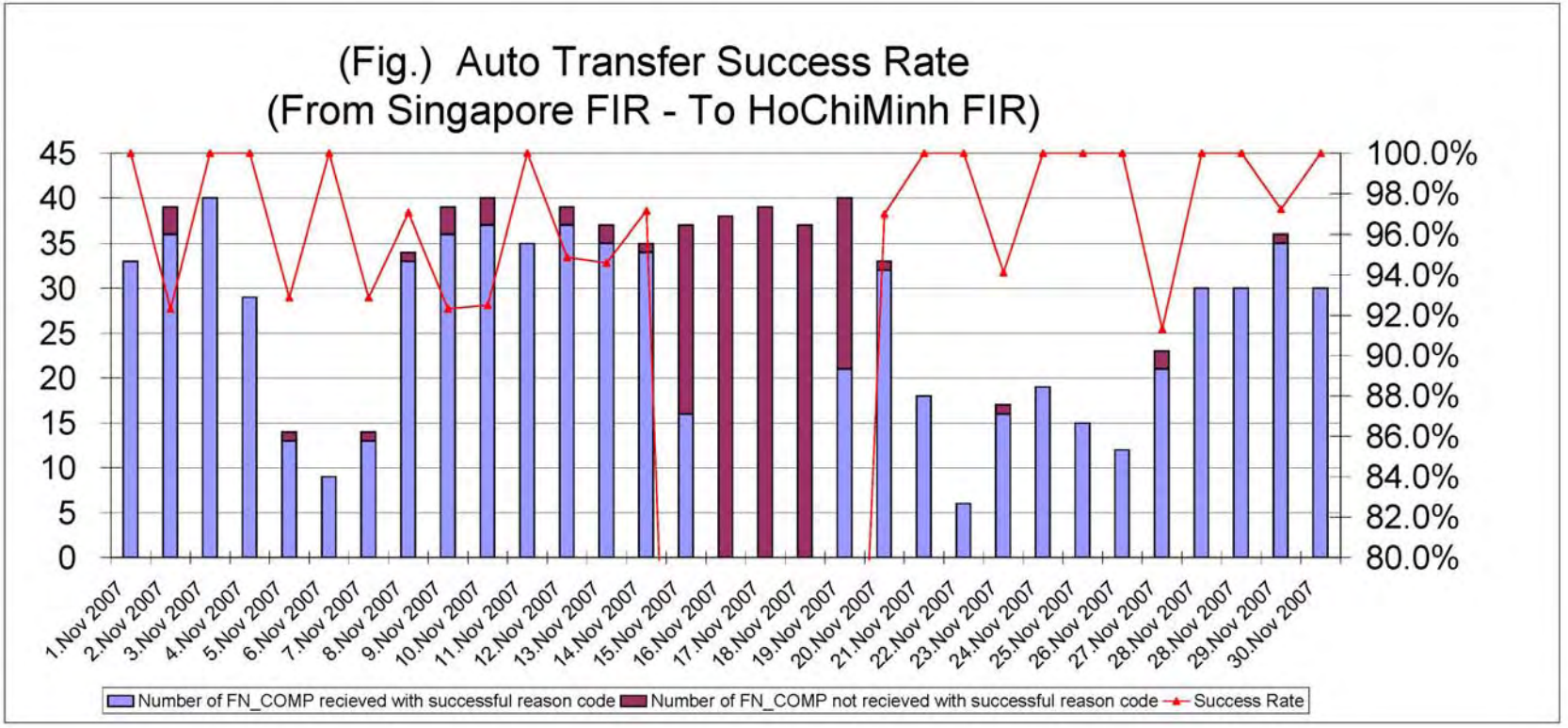
	1.Oct 2007	2.Oct 2007	3.Oct 2007	4.Oct 2007	5.Oct 2007	6.Oct 2007	7.Oct 2007	8.Oct 2007	9.Oct 2007	10.Oct 2007	11.Oct 2007	12.Oct 2007	13.Oct 2007	14.Oct 2007	15.Oct 2007	16.Oct 2007	17.Oct 2007	18.Oct 2007	19.Oct 2007	20.Oct 2007	21.Oct 2007	22.Oct 2007	23.Oct 2007	24.Oct 2007	25.Oct 2007	26.Oct 2007	27.Oct 2007	28.Oct 2007	29.Oct 2007	30.Oct 2007	31.Oct 2007
From Singapore FIR - To HoChiMinh FIR																															
Number of FN_CAD sent	27	37	37	34	25	14	34	35	30	31	30	35	36	34	38	32	37	39	39	39	38	41	32	38	33	35	29	31	33	38	38
Number of FN_COMP recieved with successful reason code	27	37	36	27	25	14	33	33	30	31	30	34	36	33	38	31	37	39	37	36	37	40	32	36	32	33	28	28	32	38	38
Success Rate	100.0%	100.0%	97.3%	79.4%	100.0%	100.0%	97.1%	94.3%	100.0%	100.0%	100.0%	97.1%	100.0%	97.1%	100.0%	96.9%	100.0%	100.0%	94.9%	92.3%	97.4%	97.6%	100.0%	94.7%	97.0%	94.3%	96.6%	90.3%	97.0%	100.0%	100.0%



Auto transfer Success Rate Nov 07

(Table) Auto Transfer Success Rate

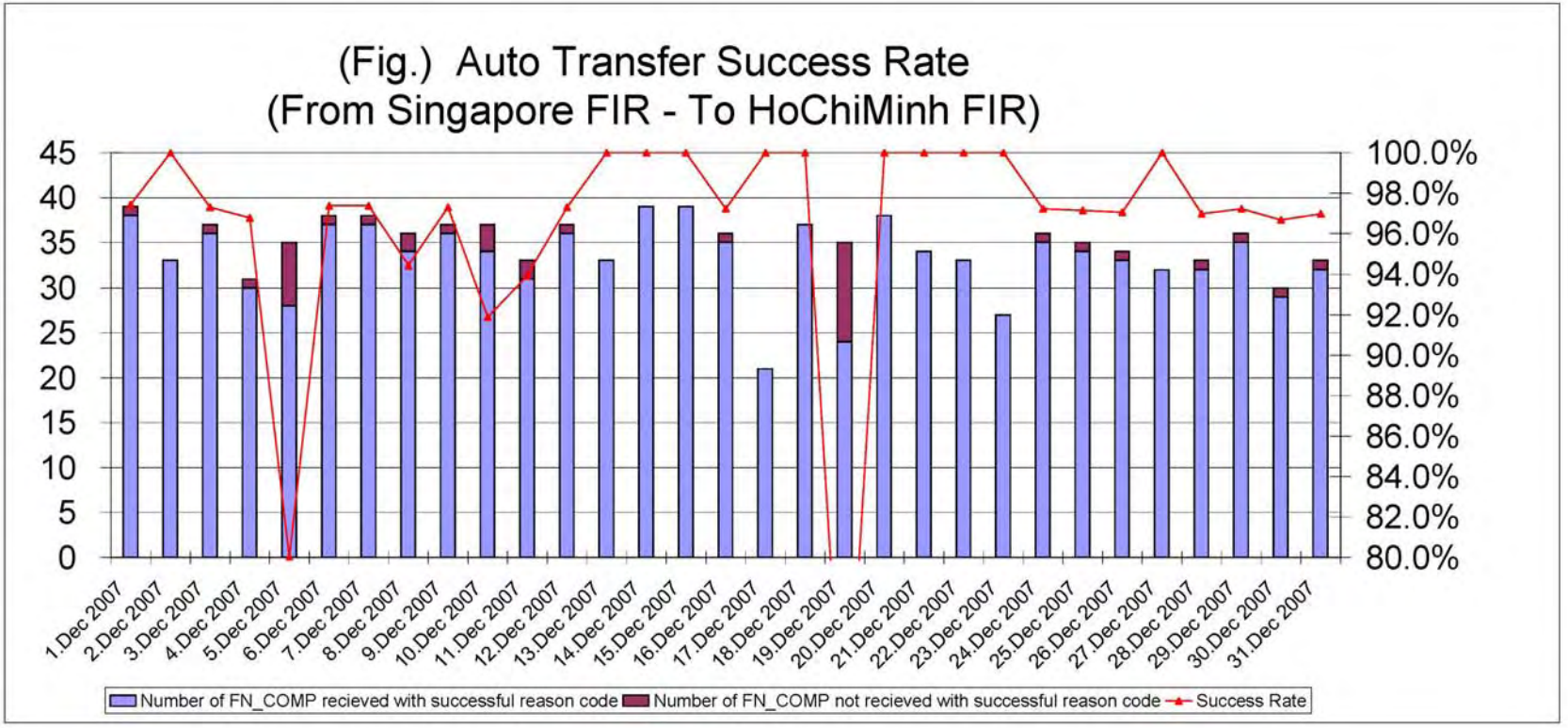
	1.Nov 2007	2.Nov 2007	3.Nov 2007	4.Nov 2007	5.Nov 2007	6.Nov 2007	7.Nov 2007	8.Nov 2007	9.Nov 2007	10.Nov 2007	11.Nov 2007	12.Nov 2007	13.Nov 2007	14.Nov 2007	15.Nov 2007	16.Nov 2007	17.Nov 2007	18.Nov 2007	19.Nov 2007	20.Nov 2007	21.Nov 2007	22.Nov 2007	23.Nov 2007	24.Nov 2007	25.Nov 2007	26.Nov 2007	27.Nov 2007	28.Nov 2007	28.Nov 2007	29.Nov 2007	30.Nov 2007
From Singapore FIR - To HoChiMinh FIR																															
Number of FN_CAD sent	33	39	40	29	14	9	14	34	39	40	35	39	37	35	37	38	39	37	40	33	18	6	17	19	15	12	23	30	30	36	30
Number of FN_COMP recieved with successful reason code	33	36	40	29	13	9	13	33	36	37	35	37	35	34	16	0	0	0	21	32	18	6	16	19	15	12	21	30	30	35	30
Success Rate	100.0%	92.3%	100.0%	100.0%	92.9%	100.0%	92.9%	97.1%	92.3%	92.5%	100.0%	94.9%	94.6%	97.1%	43.2%	0.0%	0.0%	0.0%	52.5%	97.0%	100.0%	100.0%	94.1%	100.0%	100.0%	100.0%	91.3%	100.0%	100.0%	97.2%	100.0%

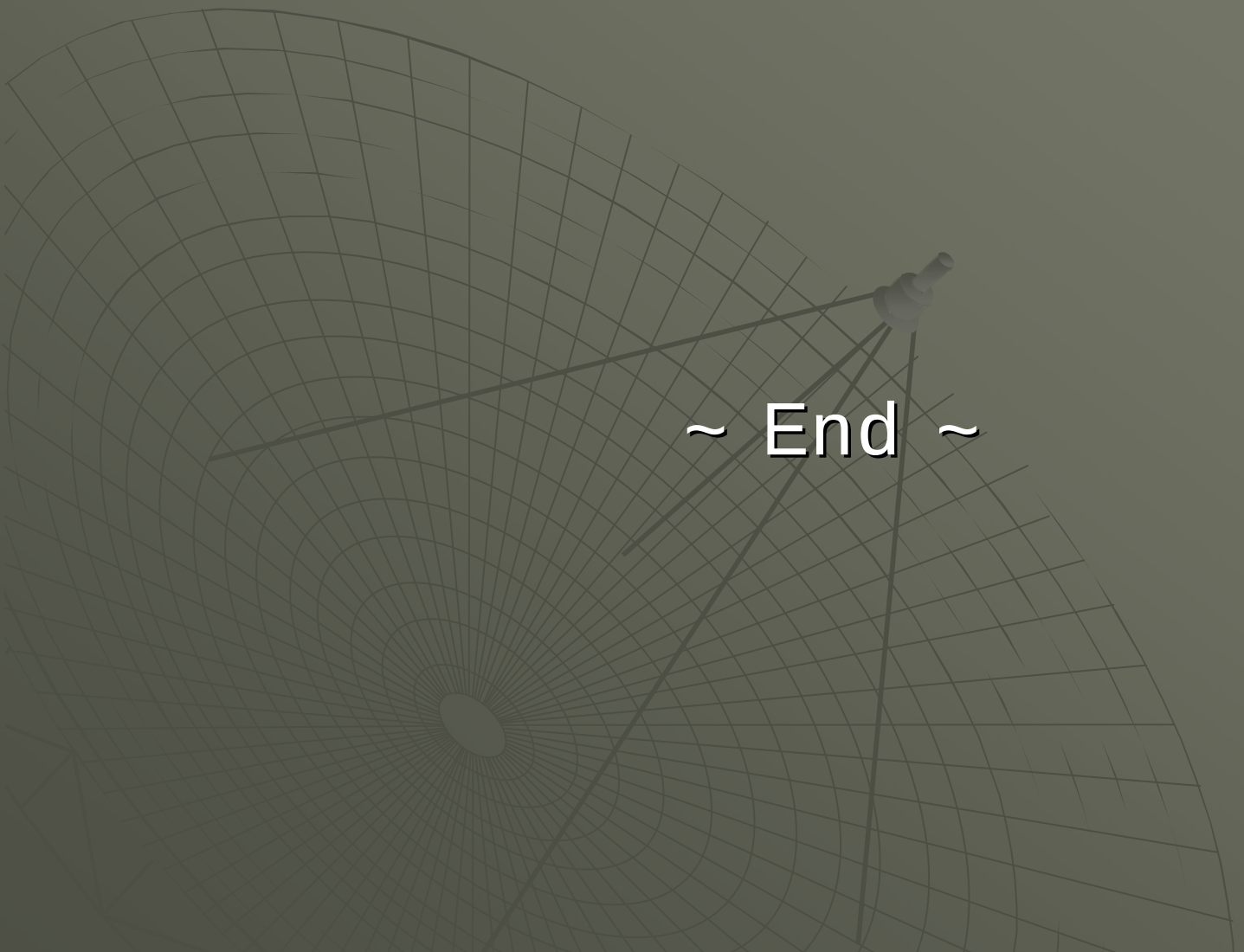


Auto transfer Success Rate Dec 07

(Table) Auto Transfer Success Rate

	1.Dec 2007	2.Dec 2007	3.Dec 2007	4.Dec 2007	5.Dec 2007	6.Dec 2007	7.Dec 2007	8.Dec 2007	9.Dec 2007	10.Dec 2007	11.Dec 2007	12.Dec 2007	13.Dec 2007	14.Dec 2007	15.Dec 2007	16.Dec 2007	17.Dec 2007	18.Dec 2007	19.Dec 2007	20.Dec 2007	21.Dec 2007	22.Dec 2007	23.Dec 2007	24.Dec 2007	25.Dec 2007	26.Dec 2007	27.Dec 2007	28.Dec 2007	29.Dec 2007	30.Dec 2007	31.Dec 2007
From Singapore FIR - To HoChiMinh FIR																															
Number of FN_CAD sent	39	33	37	31	35	38	38	36	37	37	33	37	33	39	39	36	21	37	35	38	34	33	27	36	35	34	32	33	36	30	33
Number of FN_COMP recieved with successful reason code	38	33	36	30	28	37	37	34	36	34	31	36	33	39	39	35	21	37	24	38	34	33	27	35	34	33	32	32	35	29	32
Success Rate	97.4%	100.0%	97.3%	96.8%	80.0%	97.4%	97.4%	94.4%	97.3%	91.9%	93.9%	97.3%	100.0%	100.0%	100.0%	97.2%	100.0%	100.0%	68.6%	100.0%	100.0%	100.0%	100.0%	97.2%	97.1%	97.1%	100.0%	97.0%	97.2%	96.7%	97.0%





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AIRAC AIP Supplement 01/08
29 FEB 2008

Procedure for ADS/CPDLC Operation in the Ho Chi Minh FIR

1. Introduction

1.1 Viet Nam has completed installation of an Advanced Automated Air Traffic Management System with integrated ADS/CPDLC capabilities in the Ho Chi Minh ACC. The required training for ATC personnel has been completed. Operational trials with aircraft have also been successfully conducted in phase 1 and 2. Viet Nam is now implementing the ADS/CPDLC operation to all FANS-1/A equipped aircraft.

1.2 ADS/CPDLC operational procedure will be based on the FANS Operations Manual (FOM) version 4.0 dated 28th September 2006. A copy of the FOM may be obtained from the FAA website address http://www.faa.gov/ats/ato/ispacg.htm

1.3 This AIP Supplement supersedes the AIRAC AIP Supplement 02/07 dated 21Jun 2007

2. Implementation of ADS/CPDLC operation

With effect from **0001UTC on 10th April 2008**, ADS/CPDLC services will be available on a 24 hour basis to all FANS-1/A equipped aircraft.

3. Data Link Airspace

3.1 ADS/CPDLC services are available in the oceanic ATS routes including **L625, L628, L642, M765, M768, M771, N500, N892** within **Sector 4 and 5** of Ho Chi Minh FIR (**see Chart attached**) to FANS-1/A equipped aircraft.

3.2 For aircraft having data link connection, CPDLC is utilized as the primary means of communications and VHF/HF voice will be used as secondary communication means. Depending on traffic loading, air traffic controllers may also use CPDLC within the range of VHF voice if the connection still existed.

3.3 All FANS-I/A equipped aircraft, which have CPDLC connection, shall be informed of frequency to be monitored while provided with data link services. ADS/CPDLC connection will be established either automatically or manually by ground system after logon procedure is completed.

3.4 ADS will be utilized as surveillance outside of radar coverage but ADS application shall not alter the current position report procedures.

3.5 As Singapore ACC is already and currently providing data link services within the Singapore FIR, close coordination between Ho Chi Minh and Singapore ACC for address forwarding function is necessary for a seamless ADS/CPDLC service within the two FIRs.

4. ADS/CPDLC LOGON Procedures

4.1 The ATS Facility Notification (AFN) logon is prerequisite to any ADS or CPDLC connection.

4.2 To avoid automatic rejection of the logon, the flight identification number and aircraft registration contained in the logon shall be identical to the flight identification number and registration as filed in the ATS flight plan.

4.3 The AFN logon address for Ho Chi Minh FIR is "**VVTS**".

4.4 FANS-I/A equipped aircraft requesting data link services on entering from a non-data link FIRs or airspace being provided with radar services shall logon to VVTS between 15-45 minutes prior to entering the data link airspace and CPDLC/ADS-C connection will be either established automatically or manually by Ho Chi Minh ACC after logon completed. The pilot shall downlink a CPDLC position report at the first compulsory reporting point after CPDLC connection.

4.5 FANS-1/A equipped aircraft which are being provided with data link services on entering from Singapore FIR, shall be either transferred automatically by address forwarding process or instructed by Singapore ACC, to manually logon to VVTS at an appropriate time/distance prior to the FIR boundary. The pilot shall downlink a CPDLC position report at FIR boundary after CPDLC connection.

4.6 For aircraft traversing between Ho Chi Minh and Singapore FIRs, if address forwarding is not processed and the controlling FIR is not becoming the active centre, the pilot shall, within 3 minutes of crossing the common FIR boundary, terminate the existing data link connection and then initiate a new AFN logon to the current controlling FIR i.e. "VVTS" or “WSJC”. A downlink report is required to enable the controlling FIR to ensure that it is CPDLC data authority for the aircraft.

5. ADS/CPDLC Procedures

5.1 When entering Ho Chi Minh FIR, all aircraft, which have ATC data link communications established, shall downlink position report by ADS and CPDLC at the FIR boundary. If a CPDLC position report has been sent per FOM procedures and uplinked response message received, the additional voice position reports are not required, unless requested by ATC.

5.2 To ensure the correct synchronization of message, the dialogue between air traffic controller and pilot initiated via voice shall be completed by voice and the dialogue opened by CPDLC shall be closed by CPDLC.

5.3 When ATC instruct pilots to MONITOR [unit name] [frequency] , CPDLC will remain the primary means of communication.

5.4 The downlink response "WILCO" indicates that the instruction is understood and will be complied with.

5.5 Pilot’s read back for ATS clearance/instruction issued via CPDLC is not required.

5.6 The STAND BY message is used to indicate that the request is being assessed and a short term delay is expected.

5.7 The REQUEST DEFERRED message is used to indicate that the request is being assessed and a long term delay is expected.

5.8 To avoid possible ambiguity, a CPDLC downlink massage should not contain more than one clearance request.

5.9 If multiple clearance requests are contained in a single downlink message and the controller can not comply with all requests, uplink message element **UNABLE** will be sent as a response to the entire message. A separate message containing a response to those requests that can be met will then be sent by the controller.

5.10 If any ambiguity exists as to the intent of a particular message, clarification shall be made by voice.

5.11 Standard pre-formatted message elements shall be used whenever possible. Free text message elements shall be used only when an appropriate pre-formatted message element does not exist or to supplement to an existing pre-formatted message element. A down linked clearance request and an up linked clearance shall be performed by the use of pre-formatted message elements only.

5.12 When a free text message is required, standard ATC phraseology and format shall be used. Non-essential words and phrases should be avoided. Abbreviations should only be included in free text messages when they form part of standard ICAO phraseology, e.g. ETA.

6. Limitations to ADS/CPDLC Services

6.1 Basing on the nature of the emergency condition experienced, the pilot shall notify ATC of the circumstances by the most efficient means available (voice or CPDLC).

6.2 If a CPDLC MAYDAY or PAN message is received by ground system, the air traffic controller will respond with the free text uplink message ROGER MAYDAY or PAN.

6.3 If the emergency situation no longer exists, the pilot should cancel the ADS emergency mode (if activated).

6.4 Special and other non-routine aircraft observations of moderate or severe turbulence, volcanic activity, etc should be reported by voice to ATS.

6.5 When ATC is applying radar separation between aircraft, pilots will be advised to maintain radio contact on VHF voice. CPDLC shall not be used when radar separation is applied between aircraft.

7. Termination of DATA LINK Service

7.1 For outbound flights entering Singapore FIR

For FANS-1/A equipped aircraft being provided with data link services, the “contact advisory message” (FN_CAD) will be automatically up-linked to cause the aircraft’s avionic to initiate logon to Singapore ATM system 15 minutes before crossing the FIR boundary. The "CONTACT or MONITOR [ATS unit name] --- [frequency]” message will be up-linked 5 minutes before crossing FIR boundary and "END SERVICE" message will be automatically up-linked at the boundary, when Singapore ACC accepts the flight. In the event of a failure of automatic function, an "END SERVICE" message will be manually up-linked not later than the time the flight is crossing the FIR boundary or as soon as practicable.

7.2 For outbound flights entering FIRs not providing data link services

7.2.1 For FANS-1/A equipped aircraft being provided with data link services, the CPDLC message of "CONTACT [ATS unit name][frequency] shall be up-linked 5 minutes before crossing FIR boundary.

7.2.2 The pilot should acknowledge this message by sending "WILCO". When departing the data link airspace, an "END SERVICE" message will be uplinked to terminate the CPDLC connection with "VVTS"

8. Flight Plan Procedures

8.1 ATS systems use Item 10 (Equipment) of the standard ICAO flight plan to identify an aircraft's data link capabilities. The participating pilots or operator shall be responsible for inserting the following information in the ICAO flight plan:

- Item 10 - The letter "J" to indicate data link capability;
- Item 10 - The letter "D" in the Surveillance field to indicate ADS-C capability;
- Item 18 - The letters DAT/ followed by one or more letters as appropriate to indicate the type of data link equipment carried when "J" is entered in Item 10. (Refer ICAO PANS/ATM)

Example:
ICAO Item 10: .....**J**.....**/**…**D**
ICAO Item 18: **REG/**…….....**DAT/SV** (for a satellite and VHF data link equipped aircraft)

Letter following DAT/	**Type of data link**
S	Satellite data link
H	HF data link
V	VHF data link
M	SSR Mode S data link

9. Data Link Failure

9.1 When CPDLC connection cannot be established successfully, the pilot should select "ATC Com off" if possible and then initiate another AFN logon. If the pilots continue experiencing the inability to establish CPDLC connection, the pilot shall re-establish voice communication on appropriate frequency.

9.2 When the pilot recognizes a failure of the CPDLC connection, the pilot should inform ATC of the situation via appropriate voice frequency and terminate the CPDLC connection, if possible, by selecting "ATC Com Off".

10. Addressee for Problem Reports

Pilots or operators who have encountered problems with data link service shall report using the form in Attachment 1, to the Air Navigation Department/ Civil Aviation Administration of Viet Nam, at the following address:

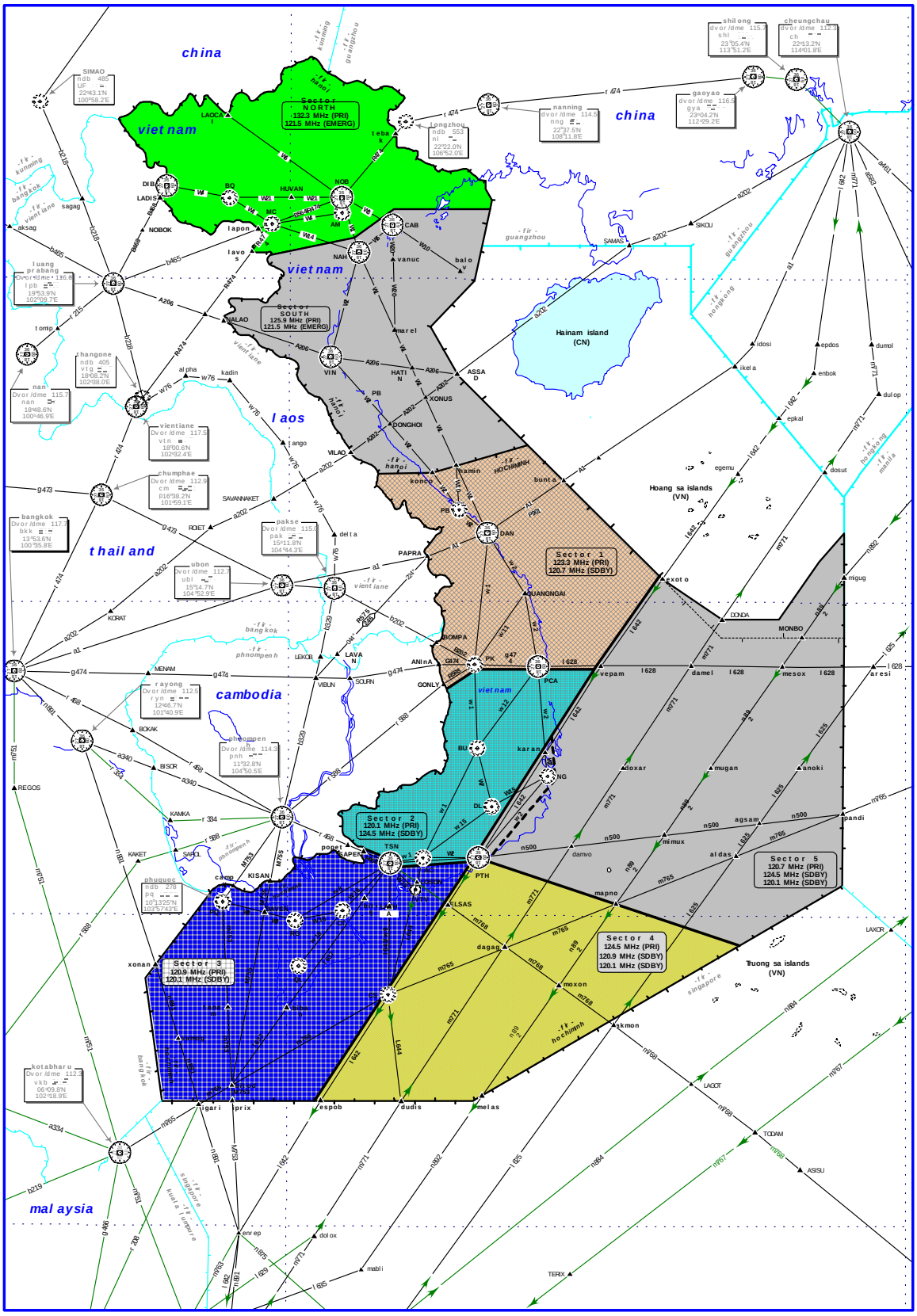
Civil Aviation Administration of Viet Nam
Air Navigation Department
119 Nguyen Son Street, Long Bien District,
Ha Noi, Viet Nam
Tel: 84-4-8 274 191 or 8 723 600
Fax: 84-4-8 274 194
AFS: VVVVYAAN
E-mail: and@caa.gov.vn

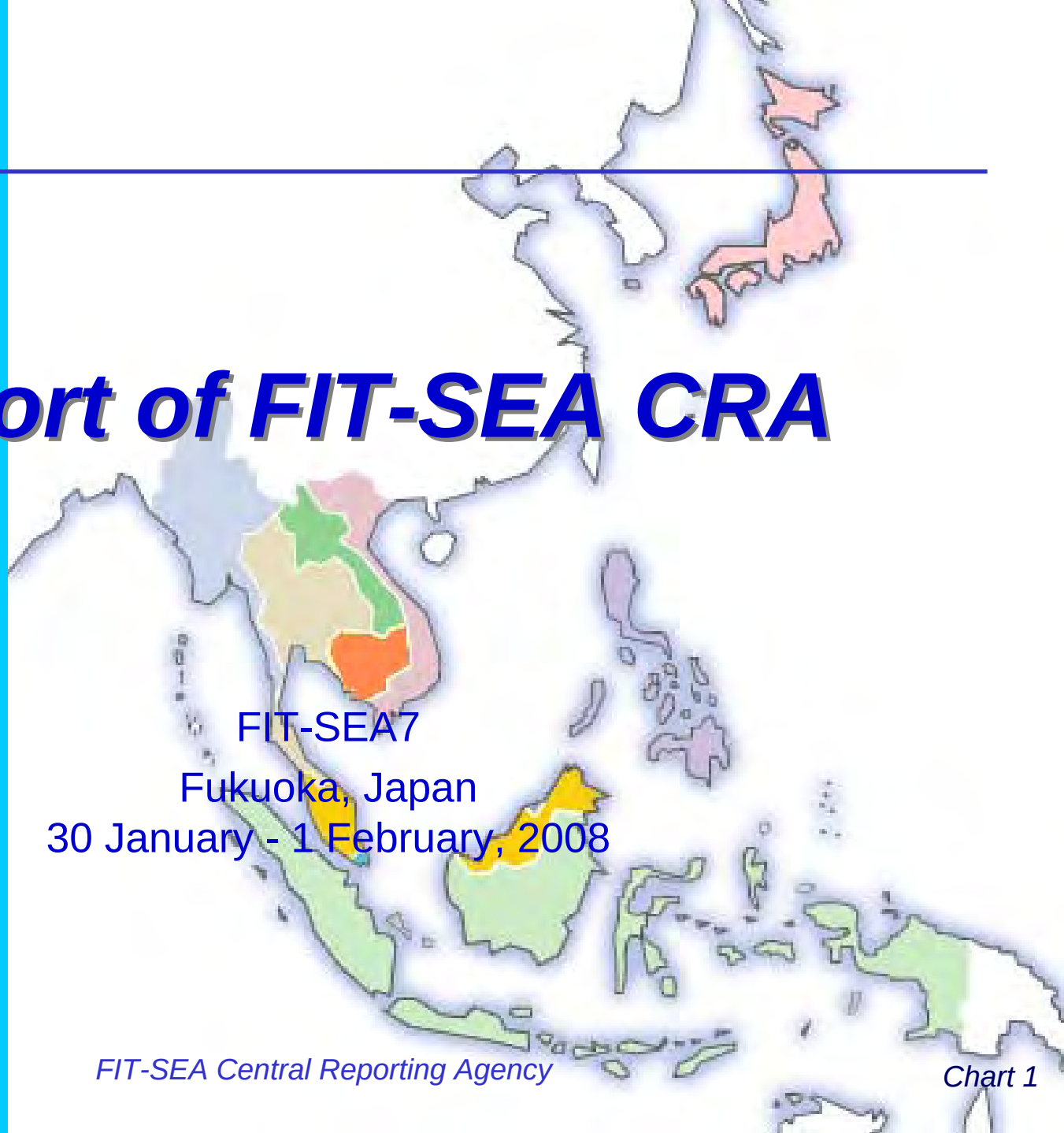
Director General
Civil Aviation Administration of Viet Nam

Attachment 1

FANS 1A-PROBLEM REPORT			**NUMBER**
Date UTC		**Time UTC**	
Registration		**Flight Number**	
Sector			
Originator		**Aircraft Type**	
Organization			
Active Center		**Next Center**	
Position			

ATS AIRSPACE SECTORIZATION IN HANOI AND HOCHIMINH FIRs





Report of FIT-SEA CRA

FIT-SEA7

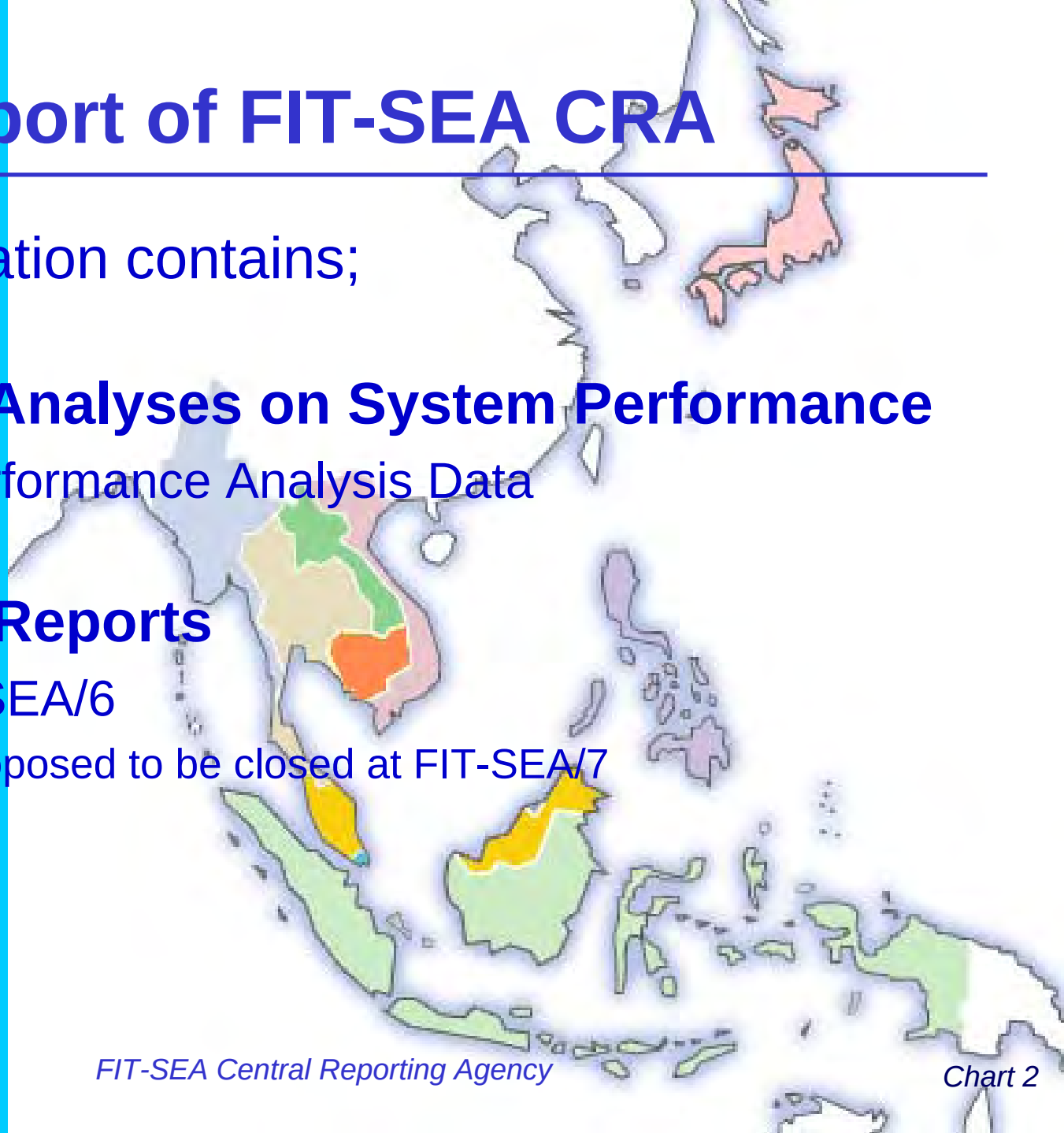
Fukuoka, Japan

30 January - 1 February, 2008

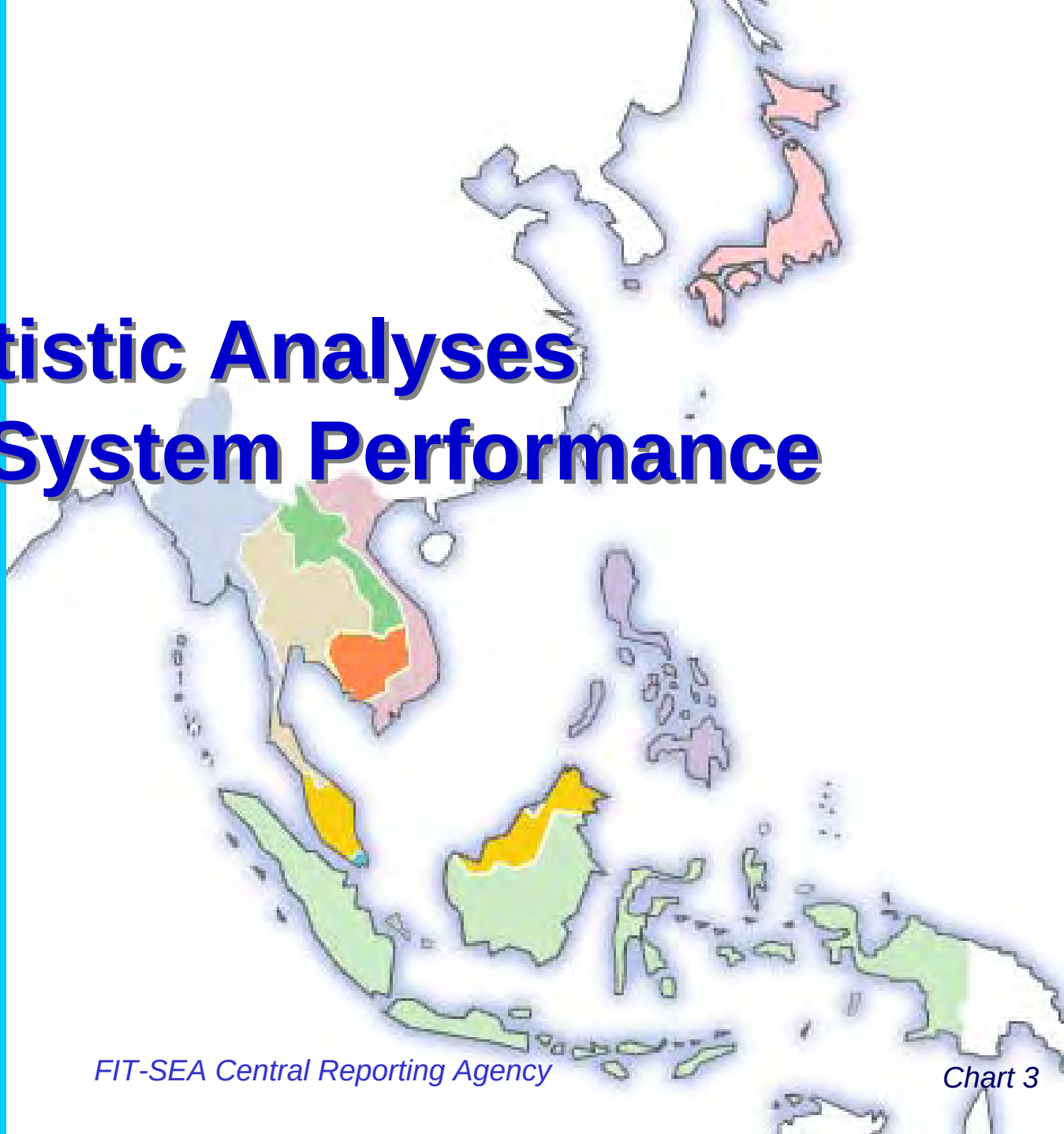
Report of FIT-SEA CRA

This presentation contains;

1. **Statistic Analyses on System Performance**
   - System Performance Analysis Data
2. **Problem Reports**
   - Since FIT-SEA/6
     - Reports proposed to be closed at FIT-SEA/7



1. Statistic Analyses on System Performance



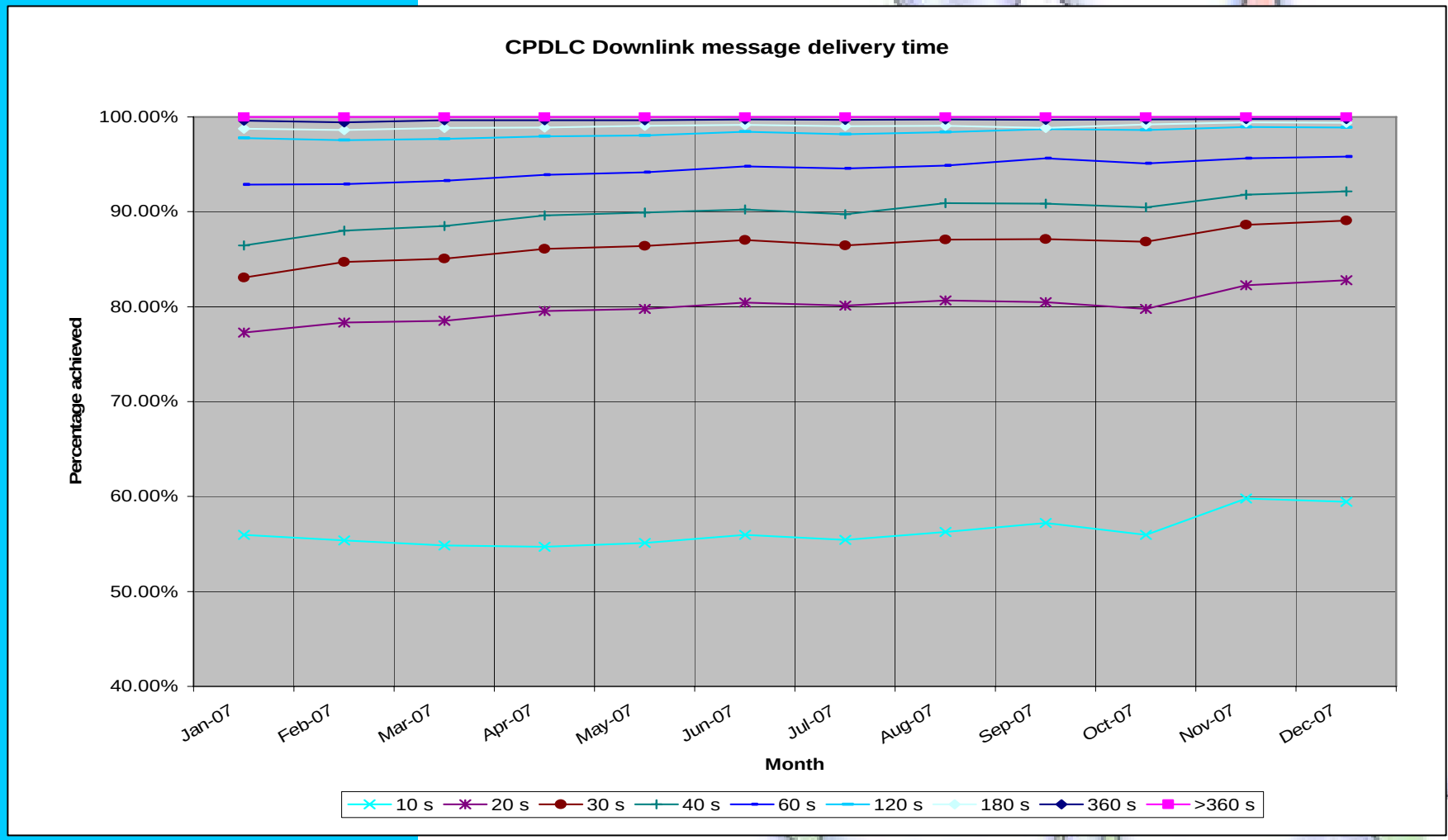
CPDLC System Performance

- In this section, we provide CPDLC system performance on:

  + CPDLC Down-link Performance
  + CPDLC Up-link Performance
  + CPDLC Up-link Message Success Rate
  + Auto Transfer Success Rate

CPDLC Down-link Performance

<SINGAPORE>

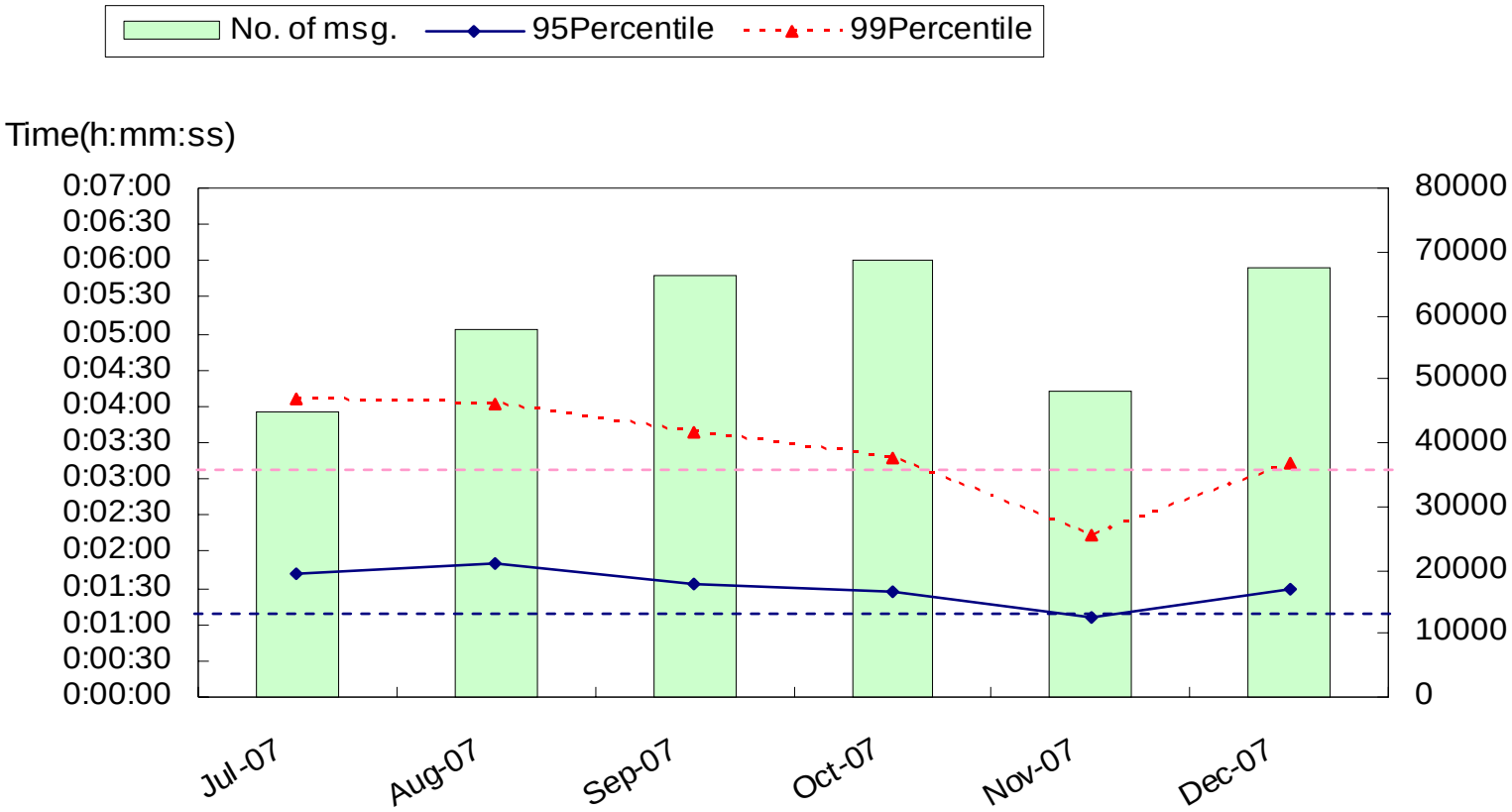


One-way Trip Time: Difference of time-stamps between the avionics and ground systems

CPDLC Down-link Performance

<VIET NAM>

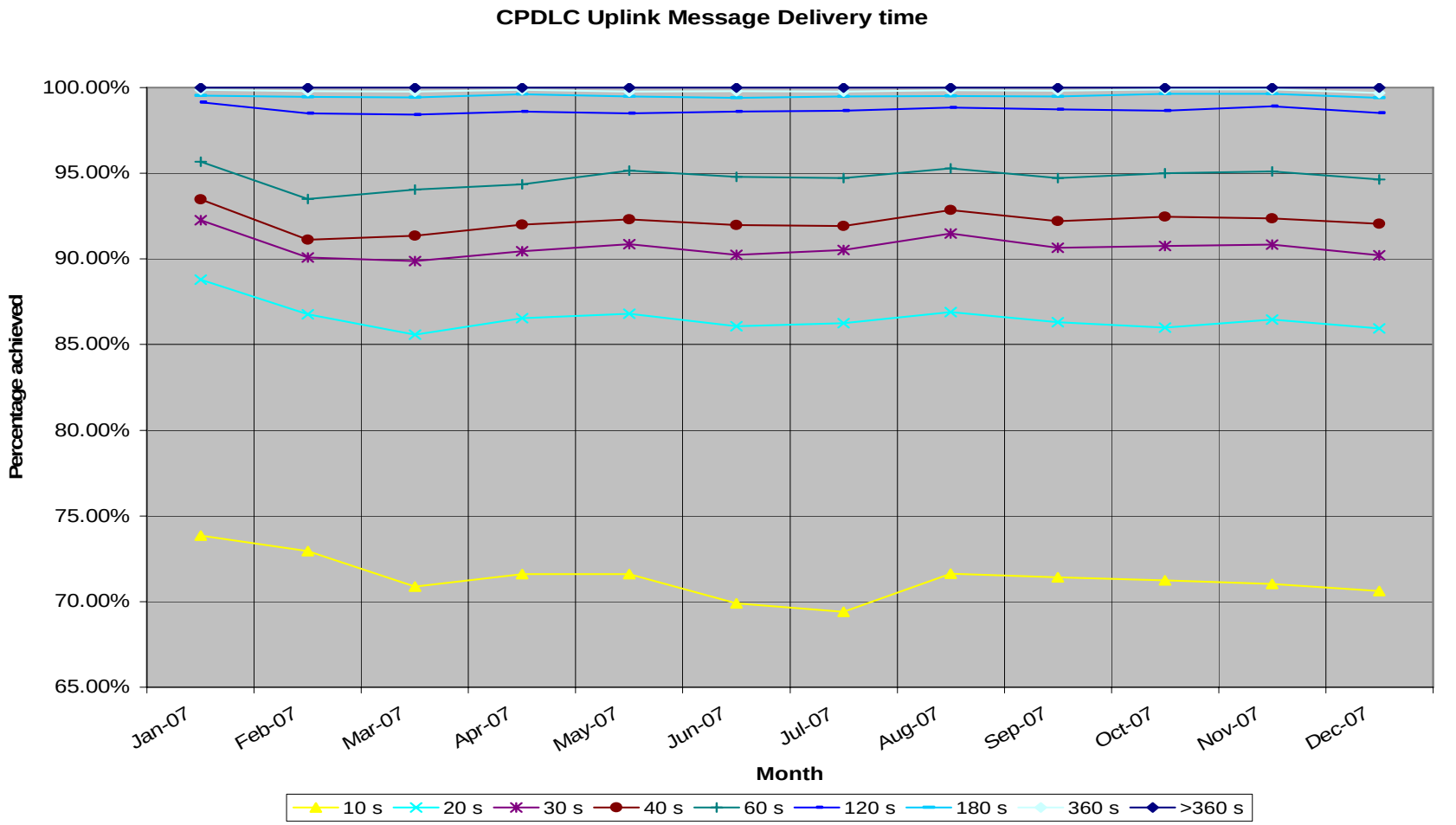
(Fig.) CPDLC Downlink 95 & 99 Percentile



One-way Trip Time: Difference of time-stamps between the avionics and ground systems

CPDLC Up-link Performance

<SINGAPORE>

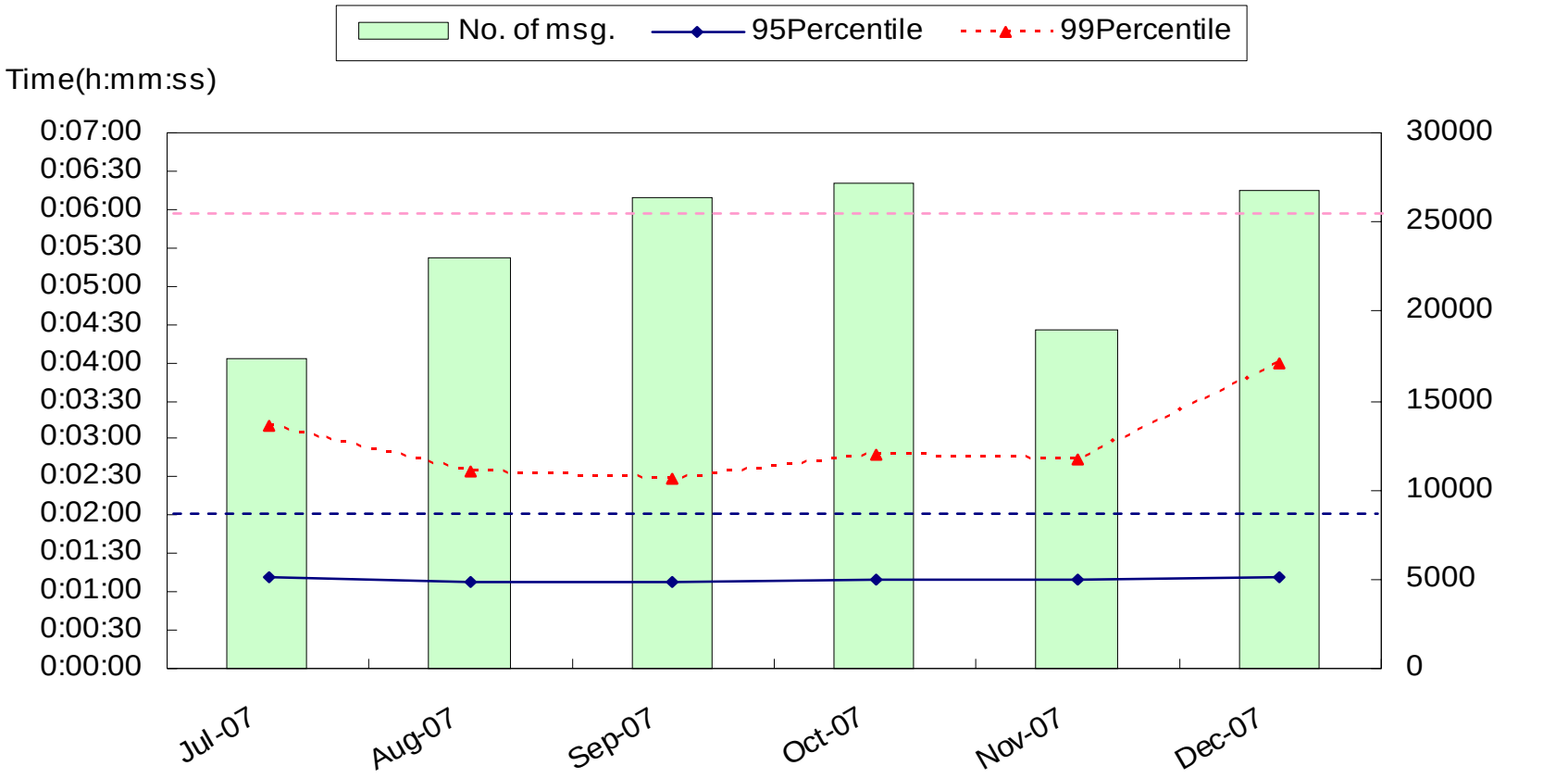


Round Trip Time: Transit-delay-time from time-stamp of up-link to receipt time of MAS

CPDLC Up-link Performance

<VIET NAM>

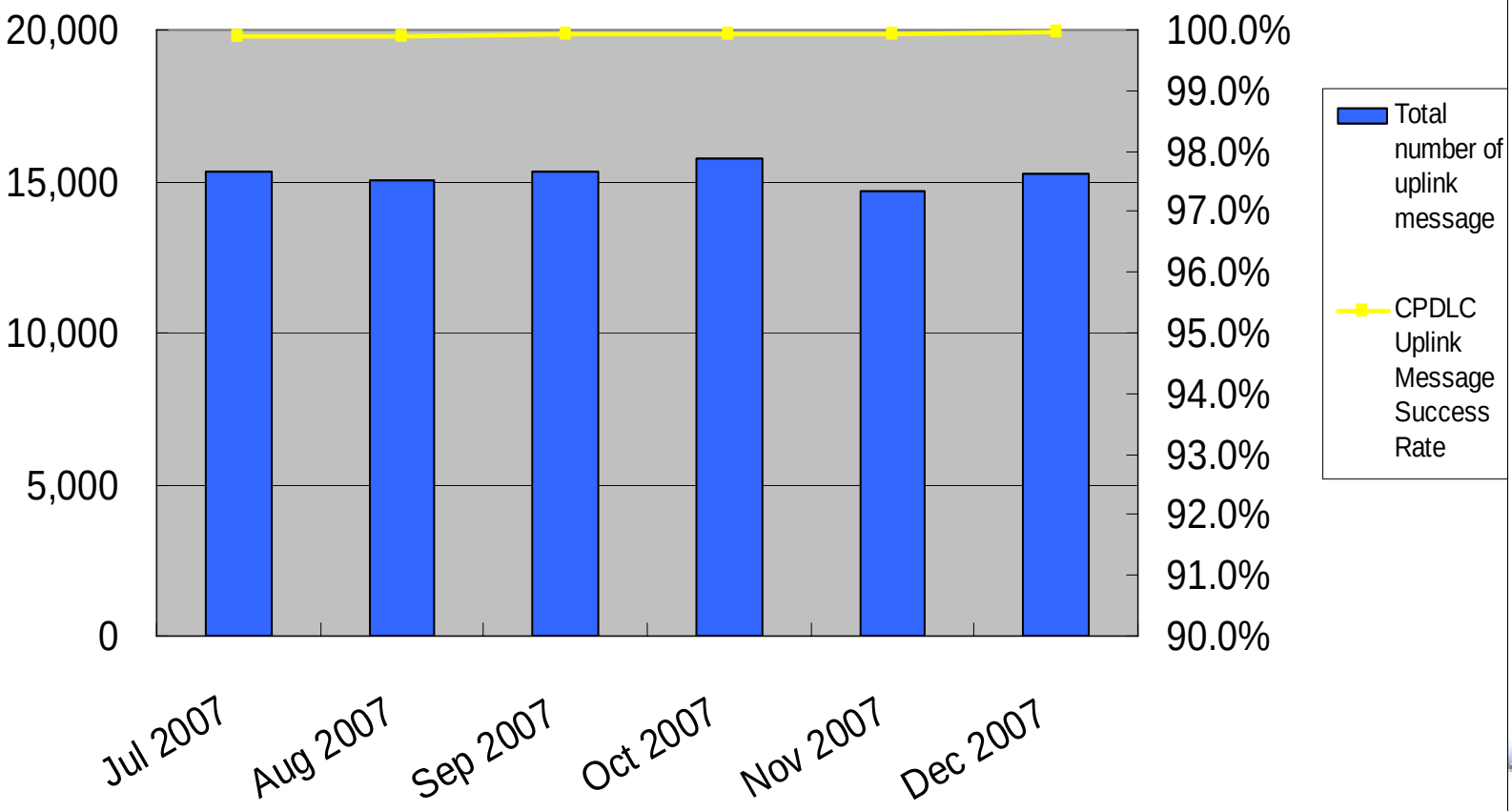
(Fig.) CPDLC Uplink 95 & 99 Percentile



Round Trip Time: Transit-delay-time from time-stamp of up-link to receipt time of MAS

CPDLC Up-link Message Success Rate

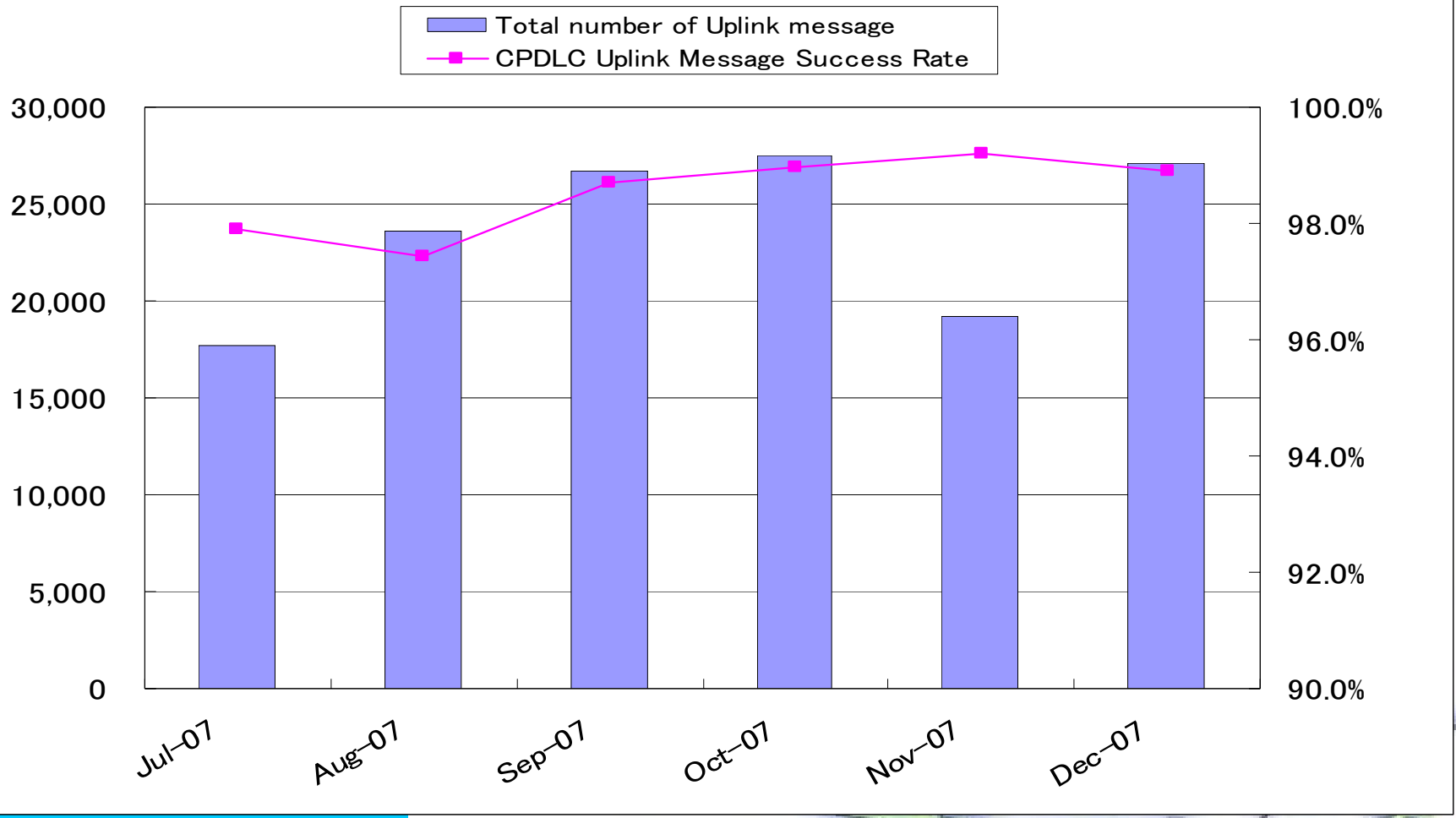
<SINGAPORE>



CPDLC Up-link Message Success Rate

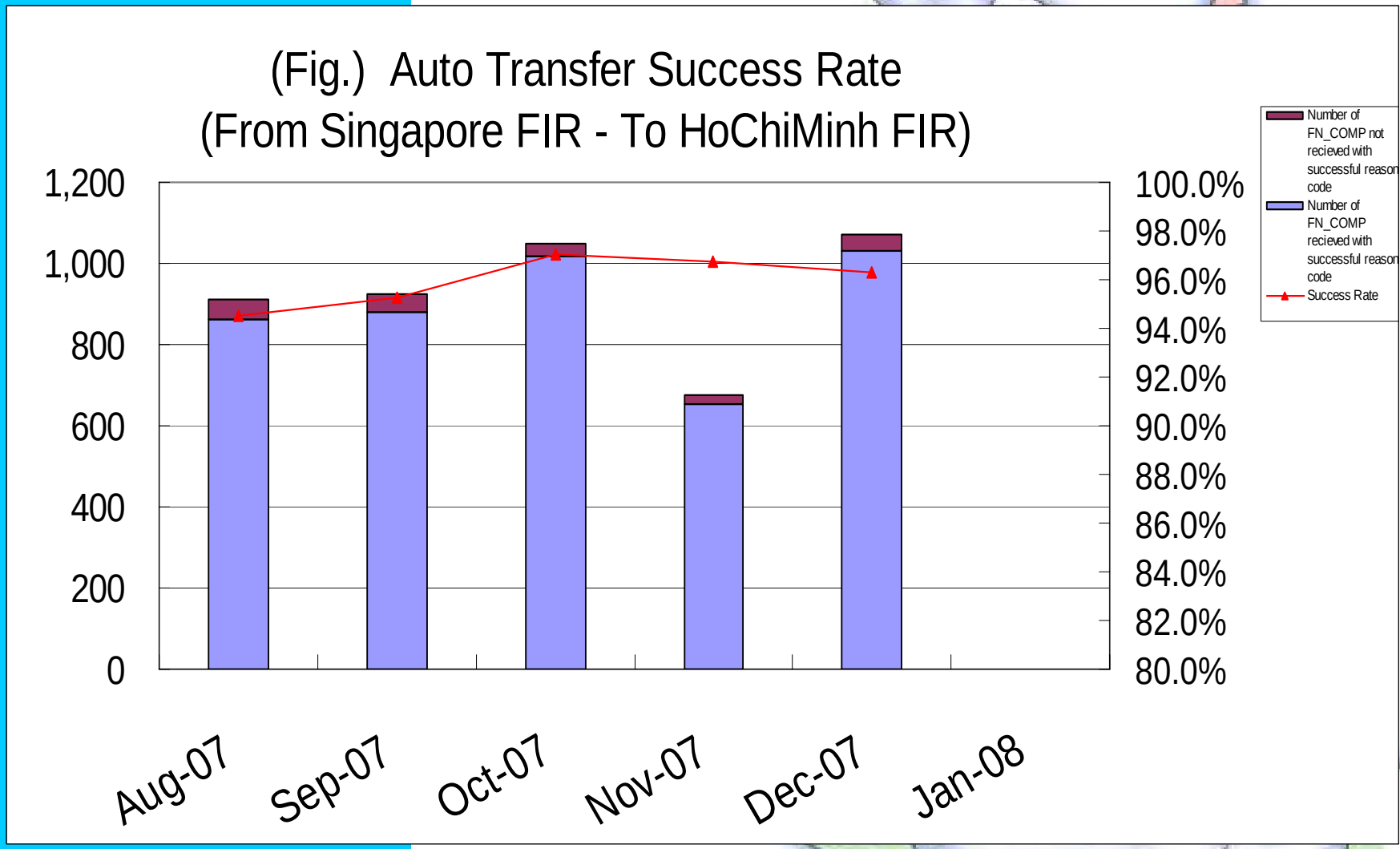
<VIET NAM>

(Fig.) CPDLC Uplink Mmessage Success Rate



Auto Transfer Success Rate

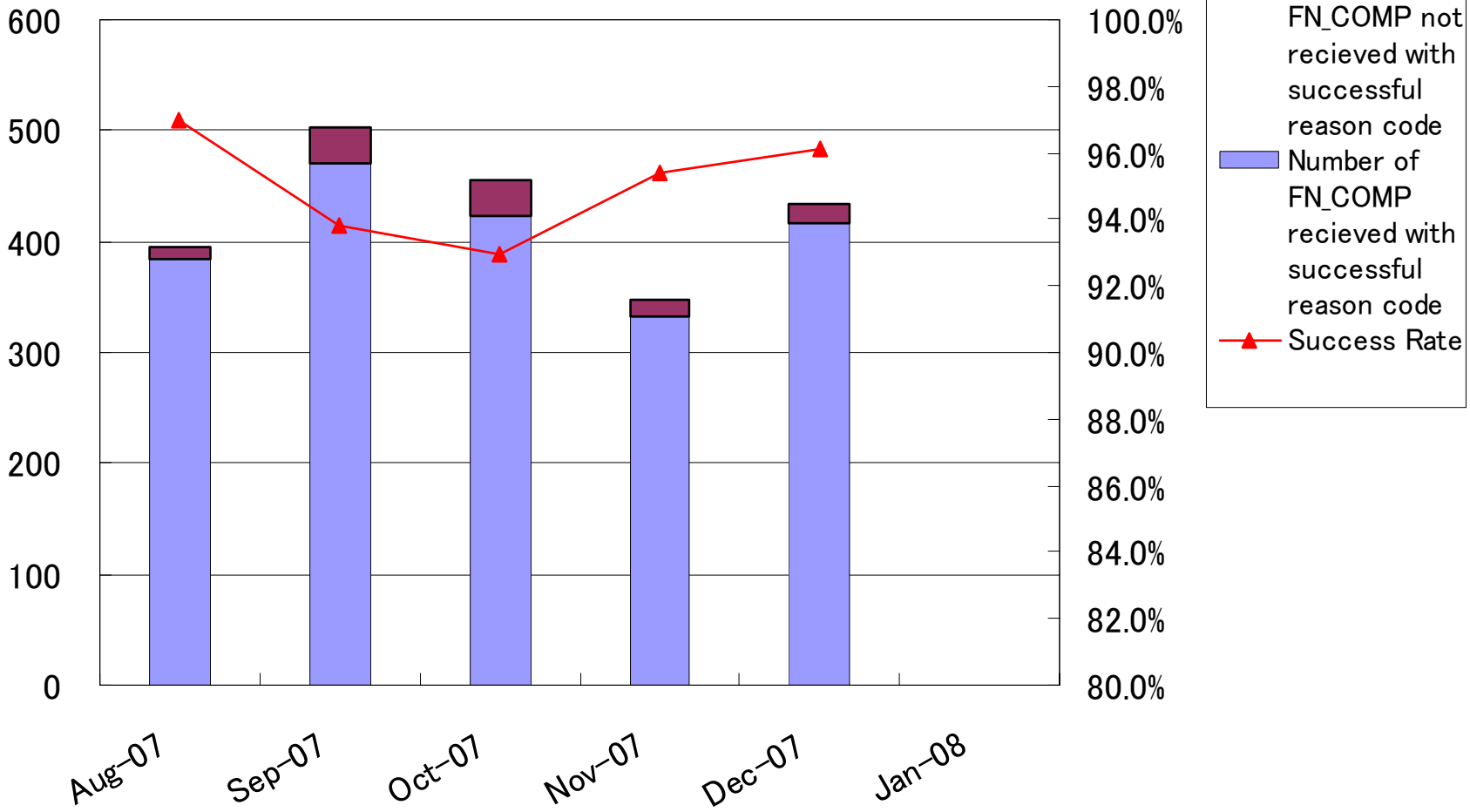
<SINGAPORE>



Auto Transfer Success Rate

<VIET NAM>

(Fig.) Auto Transfer Success Rate
(From HoChiMinh FIR – To Singapore FIR)



2. Problem Reports

Categories of new Reports

- of the 13 Reports;

- **ADS 0**
- **CPDLC 0**
- **Connection 0**
- **Datalink failure 13**

New Reports since FIT-SEA/6 (1)

(1) Datalink, General Problem

PR NO.	Problem Report Title	Comments/Notes/Description	Status	Discuss at FIT-SEA/7?
50018	*Unable to use Datalink*	*there are no data available to analyze the problem, we will investigate it when a similar event*	*Waiting*	N
50019	*Unable to use Datalink*	*Due to ATSU End System failure*	*Ready for FIT-SEA7*	N
50020	*Unable to use Datalink*	*Due to ATSU End System failure*	*Ready for FIT-SEA7*	N
50021	*Unable to use Datalink*	*ACARS link between the ATSU end system and a DSP was unstable.*	*Ready for FIT-SEA7*	N
50022	*Unable to use Datalink*	*ACARS link between the ATSU end system and a DSP was unstable.*	*Ready for FIT-SEA7*	N
50023	*Unable to use Datalink*	*Due to ATSU End System failure*	*Ready for FIT-SEA7*	*N*

New Reports since FIT-SEA/6 (2)

(1) Datalink, General Problem (cont'd)

PR NO.	Problem Report Title	Comments/Notes/Description	Status	Discuss at FIT-SEA/7?
50024	*Unable to use Datalink*	*ACARS link between the ATSU end system and a DSP was unstable.*	*Ready for FIT-SEA7*	N
50025	*Unable to use Datalink*	*Due to ATSU End System failure*	*Ready for FIT-SEA7*	N
50026	*Unable to use Datalink*	*Due to ATSU End System failure*	*Ready for FIT-SEA7*	N
50027	*Unable to use Datalink*	*ACARS link was not stable between ATSU end system and DSPs*	*Ready for FIT-SEA7*	N
50028	*Unable to use Datalink*	*there are no data available to analyze the problem, we will investigate it when a similar event*	*Waiting*	N
50029	*Unable to use Datalink*	*Due to unplanned DSP'S outage*	*Ready for FIT-SEA7*	N
50030	*Unable to use Datalink*	*Due to lightning stroke*	*Ready for FIT-SEA7*	N

PRs to be closed at FIT-SEA7

- Unable to use Datalink(PR50019～27,50029,50030)

Unable to use Datalink

PR Number: PR50019～27,50029,50030

PR Status: Ready for FIT-SEA (Technical)

Problem Report from ATSU:

<EVENTS>

- Aircrafts could not use datalink services.

<ANALYSIS>

- Due to ATSU End System failure.
- Due to DSP's outage.
- ACARS link was not stable between an ATSU end system and a DSP.
- Due to lightning stroke.

Thank you for your attention!

APANPIRG Asia/Pacific Airspace Safety Monitoring

RASMAG LIST OF COMPETENT AIRSPACE SAFETY MONITORING ORGANIZATIONS

The Regional Airspace Safety Monitoring Advisory Group of APANPIRG (RASMAG) is required by its terms of reference to recommend and facilitate the implementation of airspace safety monitoring and performance assessment services and to review and recommend on the competency and compatibility of airspace monitoring organizations. In order to assist in addressing these requirements, RASMAG updates and distributes the following list of competent airspace safety monitoring organizations for use by States requiring airspace safety monitoring services. In the context of the list, abbreviations have meanings as follows:

- RMA – Regional Monitoring Agency – safety assessment in the vertical plane (i.e. RVSM);
- SMA – Safety Monitoring Agency – safety assessment in the horizontal plane (i.e. RHSM, RNP10, RNP4); and
- CRA – Central Reporting Agency – technical performance of data link systems (i.e. ADS/CPDLC)
- FIT – FANS 1/A Interoperability/Implementation Team – parent body to a CRA.

(Last updated ~~11 January~~1 February 2008)

Organization *(including contact officer)*	State	Competency	Status	Airspace assessed (FIRs)
Australian Airspace Monitoring Agency (AAMA) - Airservices Australia Mr. Robert Butcher, Manager Human Factors and Analysis, Safety Management Group, email robert.butcher@airservicesaustralia.com	Australia	APANPIRG RMA	Current	Brisbane, Melbourne, Port Moresby, Nauru and Honiara FIRs.
		SMA	Current	Brisbane, Melbourne FIRs.

Organization *(including contact officer)*	State	Competency	Status	Airspace assessed (FIRs)
China RMA, Air Traffic Management Bureau, China Mr. Tang Jinxiang, Engineer of Safety and Monitoring Technical Group, ATMB e-mail: tangjx@adcc.com.cn	China	RMA	Current	Beijing, Guangzhou, Kunming, Lanzhou, Shanghai, Shenyang, Urumqi and Wuhan FIRs and Sector 01 (airspace over Hainan Island) of the Sanya FIR.
JCAB RMA Japan Civil Aviation Bureau (Mr. Masao Kondo, Special Assistant to the Director, Flight Procedures and Airspace Program Office, email kondou-m2pd@mlit.go.jp)	Japan	APANPIRG RMA	Current	Fukuoka FIR
		SMA	Available second quarter – 2009	Fukuoka FIR
Monitoring Agency for the Asia Region (MAAR) (Dr. Paisit Herabat Executive Officer, Systems Engineering,Aeronautical Radio of Thailand Ltd. Email: paisit@aerothai.co.th	Thailand	APANPIRG RMA	Current	Bangkok, Kolkatta, Chennai, Colombo, Delhi, Dhaka, Hanoi, Ho Chi Minh, Hong Kong, Jakarta, Karachi, Kathmandu, Kota Kinabalu, Kuala Lumpur, Lahore, Male, Manila, Mumbai, Phnom Penh, Sanya FIR,

Organization *(including contact officer)*	State	Competency	Status	Airspace assessed (FIRs)
				Singapore, Taibei, Ujung Pandang, Ulaan Bataar, Vientiane, Yangon FIRs
Pacific Approvals Registry and Monitoring Organization (PARMO) - FAA Mr. Brian Colamosca Manager, Separation Standards Analysis Group, FAA, email: brian.colamosca@faa.gov	USA	APANPIRG RMA	Current	Anchorage Oceanic, Auckland Oceanic, Incheon, Nadi, Oakland Oceanic, Tahiti FIRs
Civil Aviation Authority of Singapore (CAAS) (Mr. Kuah Kong Beng, Chief Air Traffic Control Officer, email: KUAH_Kong_Beng@caas.gov.sg)	Civil Aviation Authority of Singapore (CAAS)	Monitoring Authority for Gross Navigation Error (GNE) in South China Sea	Current	Hong Kong, Ho Chi Minh, Manila, Sanya, Singapore FIRs,
		SMA	From 3rd quarter 2008	Hong Kong, Ho Chi Minh, Manila, Sanya, Singapore FIRs
FIT/SEA (ICAO Regional Office email icao_apac@bangkok.icao.int & CRA Japan (Mr. ~~Yoshiro Nakatsuji~~Masashisa Hayashi, Deputy Director, Air Traffic Control Association Japan, email: ~~naka@atcaj.or.jp~~hayashi@atcaj.or.jp)	ICAO Regional Office & CRA Japan	FIT & CRA	Current	South China Sea FIRs

Organization *(including contact officer)*	State	Competency	Status	Airspace assessed (FIRs)
IPACG/FIT (Mr. ~~Hiroshi Inoguchi~~Takahiro Morimoto, JCAB Co-Chair, email: ~~Inoguchi-h2hh@mlit.go.jp~~morishima-t2zg@mlit.go.jp & Mr. Reed Sladen, FAA Co-Chair, email reed.b.sladen@faa.gov)	Japan & USA	FIT & CRA	Current	North & Central Pacific (Oceanic airspace within Fukuoka FIR, and Anchorage & Oakland FIRs)
CRA Japan (Mr. ~~Yoshiro Nakatsuji~~Masashisa Hayashi, Deputy Director, Air Traffic Control Association Japan, email: ~~naka@atcaj.or.jp~~hayashi@atcaj.or.jp)	Japan	CRA	Current	Fukuoka FIR for IPACG/FIT Ho Chi Minh, Manila, Singapore FIRs for FIT-SEA
FIT/BOB (ICAO Regional Office email icao_apac@bangkok.icao.int & Mr. Bradley Cornell, Boeing Engineering, email Bradley.D.Cornell@Boeing.Com)	ICAO Regional Office & Boeing USA	FIT & CRA	Current	Bay of Bengal FIRs, Ujung Pandang and Jakarta FIRs, provides assistance to the members of the Arabian Sea/Indian Ocean ATS Coordination Group (ASIOACG)
ISPACG/FIT (Mr. Bradley Cornell, Boeing Engineering, email Bradley.D.Cornell@Boeing.Com)	Boeing USA	FIT & CRA	Current	South Pacific FIRs and members of the Informal South Pacific ATS Coordination Group (ISPACG)

FIT- SEA TASK LIST

(Last updated ~~May 2007~~February 2008)

	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	Status	REMARKS
1.	ATS providers to use the *FANS Operations Manual* (FOM), and to review and update their ATS operating procedures to align with the FOM.	Ongoing activities as additional States join the operational trial.	All States	Ongoing	Important that all ATSU adopt common operating procedures. APANPIRG/15 (August 2004) agreed that the FOM be used as the basis for ADS and CPDLC operations in conjunction with Annex 10, PANS-ATM and regional guidance material.
2.	ATS providers to coordinate with adjacent ACCs to review and update letters of agreement for introduction of ADS/CPDLC services on a trial basis.	Ongoing activities as additional States join the operational trial.	Philippines~~, Singapore and Viet Nam~~	Ongoing	Ensure common ATC procedures applied. Letter of agreement between Singapore and Viet Nam for trial was finalised and signed in February 2007 and would be amended for the regular operations in April 2008.
3.	Issue AIC/AIP Supplement on the commencement of the operational trial.	AIC prior to the Phase 1 commencement and AIP Supplement prior to Phase 2 commencement	Philippines~~ and Viet Nam~~	~~Ongoing~~As required	~~Singapore has already issued AIP on availability of ADS/CPDLC services in the Singapore FIR~~ ~~AIC for Phase 1 was issued by Viet Nam in January 2007. AIP Supplement for Phase 2 is to be published on 21 June 2007.~~

	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	Status	REMARKS
					Publications of AIC and AIP Supplement by the Philippines are subject to the readiness in the Manila FIR.
4.	Coordinate with Southeast Asia States on ~~implementation of~~ the operational trial.	Ongoing activities as additional States join the operational trial.	ICAO, All States	Ongoing	Determine status on trial participation Philippines planning to commence trial TBA
5.	Collect ADS/CPDLC Problem Reports (PR) and submit to CRA through the State.	Immediate	States, operators	Ongoing	To be submitted as soon as practicable to facilitate analysing the reports. FIT-SEA CRA operated by CRA Japan ~~to~~ undertake<u>s</u> CRA services from ~~late 2005~~<u>March 2007</u>.
6.	Provision of monthly monitoring ADS/CPDLC system performance data to be submitted to the CRA.	Monthly	States	Ongoing	Essential for evaluating overall system performance within the trial airspace. FIT-SEA CRA operated by CRA Japan ~~to~~ undertake<u>s</u> CRA services from ~~late 2005~~<u>March 2007</u>.

	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	Status	REMARKS
7.	~~Compile~~Compilation of data on aircraft ADS/CPDLC equipped in the trial airspace.	Biannually	States, IATA	Ongoing	To keep record of aircraft participating in the trial and determine overall benefits derived by population of aircraft operating in the trial airspace.
8.	Training of controllers and technical staff on ADS/CPDLC operational procedures based on the FOM.	Ongoing activities as additional States join the operational trial.	Philippines ~~and Viet Nam~~	Ongoing	~~Eight five-day training courses for 60 air traffic controllers began in 15 January 2007 to Viet Nam and completed for all controllers by 10 March 2007.~~
9.	Nominate contact person (technical and ATS) and keep details updated.	Ongoing activities as additional States join the operational trail	States, operators	Ongoing	Important that CRA has contact with engineering and operational personnel to analyse problem reports and performance data. Contact persons to be included in the Table of ADS/CPDLC Equipage and ATS Status retained by FIT-SEA FIT-SEA CRA operated by CRA Japan ~~to undertake~~undertook CRA services ~~from~~in ~~late 2005~~March 2007.

	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	Status	REMARKS
10.	Establish data confidentiality agreements between States and CRA, and States and operators participating in the trial airspace.	Immediate	CRA, Philippines, Singapore and Viet Nam, and operators	~~As required~~Ongoing	To establish agreement with States, operators and data providers for release of data and to de-identify reports. Viet Nam and Singapore have singed.
11.	Update ICAO Guidance Material on CNS/ATM Operations in APAC Region.	As soon as practicable	ICAO	Ongoing	Part III harmonized with FOM. ICAO Headquarters continuing the review/harmonisation of Guidance Material. International Data Link Manual (IDLM) in preparation under the auspices of ICAO EUR/NAT Office.
12.	~~Prepare suitable~~Update table of ADS/CPDLC implementation planning for all FIT-SEA FIRs including estimated dates for implementation of CPDLC communications, ADS/CPDLC full implementation, 50/50 NM reduced separation and 30/30 NM reduced separation to provide basis for long term satellite traffic load estimates to assist DSP network planning.	As required	SITA, ANSP	Ongoing	SITA has launched global satellite capacity/performance planning initiative to collect data from ANSPs and users to ensure timely network enhancement to meet future network requirements (Raised at FIT-SEA/4)

	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	Status	REMARKS
13.	Submit the interim report of Phase 2 by Singapore, Viet Nam and FIT-SEA CRA.	FIT-SEA/7	Singapore, Viet Nam and FIT-SEA CRA	Completed	~~FIT-SEA/7 will be a "Go/No-Go" decision making where an interim report of the Phase 2 should be made by Singapore, Viet Nam and FIT-SEA CRA~~ (Raised at FIT-SEA/6) FIT-SEA/7 reviewed the interim report of Phase 2 and agreed that Viet Nam could terminate Phase 2 trial and commence the regular operation on 10 April 2008. (Revised at FIT-SEA/7)
14.	Coordinate with FOM editorial group on request for change to the FOM	As required		Ongoing	SEA FOM editor to be nominated. FOM includes Request for Change (RFC) processes.
15.	Issue AIP Amendment/Supplement on the commencement of the regular operations of ADS/CPDLC.	29 February 2008	Viet Nam	Ongoing	Singapore has already issued AIP on availability of ADS/CPDLC services in the Singapore FIR AIC for Phase 1 trial was issued by Viet Nam in January 2007. AIP Supplement for Phase 2 trial was published on 21 June 2007. AIP Supplement for the regular operation will be issued on 29 February 2008.

	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	Status	REMARKS
16.	Revise and sign the Supplementary Letter of Agreement (SLOA) on transfer of ADS/CPDCL between Ho Chi Minh and Singapore Area Control Centres	As soon as practicable	Singapore and Viet Nam	Ongoing	The Supplementary Letter of Agreement (SLOA) on transfer of ADS/CPDCL between Ho Chi Minh ACC and Singapore ACC would be revised and signed after proposed plan being approved. (Raised at FIT-SEA/7)
17.	Submit the final report of Phase 2 by Singapore, Viet Nam and FIT-SEA CRA.	FIT-SEA/8	Singapore, Viet Nam and FIT-SEA CRA	Ongoing	FIT-SEA/8 will review the ADS/CPDLC system performance and the final report of the Phase 2 should be submitted by Singapore, Viet Nam and FIT-SEA CRA (Raised at FIT-SEA/7)

……

SOUTHEAST ASIA DATA LINK IMPLEMENTATION

STATES	FIR	ESTIMATED/ STARTED DATE	DATE COMPLETED	NOTES
Commence ADS/CPDLC Operational Trial				
Malaysia	Kuala Lumpur	–	–	Will participate in the Bay of Bengal (BOB) trials in the first quarter of 2008.
Philippines	Manila	TBA		
Singapore	Singapore	1997	1997	
Thailand	Bangkok	TBA		Had previously participated in BOB trials, some equipment issues.
Viet Nam	Ho Chi Minh	15 March 2007		New ATS Centre Ho Chi Minh commissioned May 2006
Implement CPDLC - Data Link Communications only				
Malaysia	Kuala Lumpur			
Philippines	Manila	TBA		
Singapore	Singapore	1997		
Thailand	Bangkok	TBA		
Viet Nam	Ho Chi Minh	2008		
Implement 50 NM/50 NM Based on RNP 10				
Malaysia	Kuala Lumpur	TBA		
Philippines	Manila	TBA		
Singapore	Singapore	~~TBA~~2008		
Thailand	Bangkok	TBA		
Viet Nam	Ho Chi Minh	TBA		

STATES	FIR	ESTIMATED/ STARTED DATE	DATE COMPLETED	NOTES
Implement 30 NM/30 NM Based on RNP 4				
Malaysia	Kuala Lumpur	TBA		
Philippines	Manila	TBA		
Singapore	Singapore	~~TBA~~2010		
Thailand	Bangkok	TBA		
Viet Nam	Ho Chi Minh	TBA		

ARINC Satellite GESs Update

January 31st, 2008

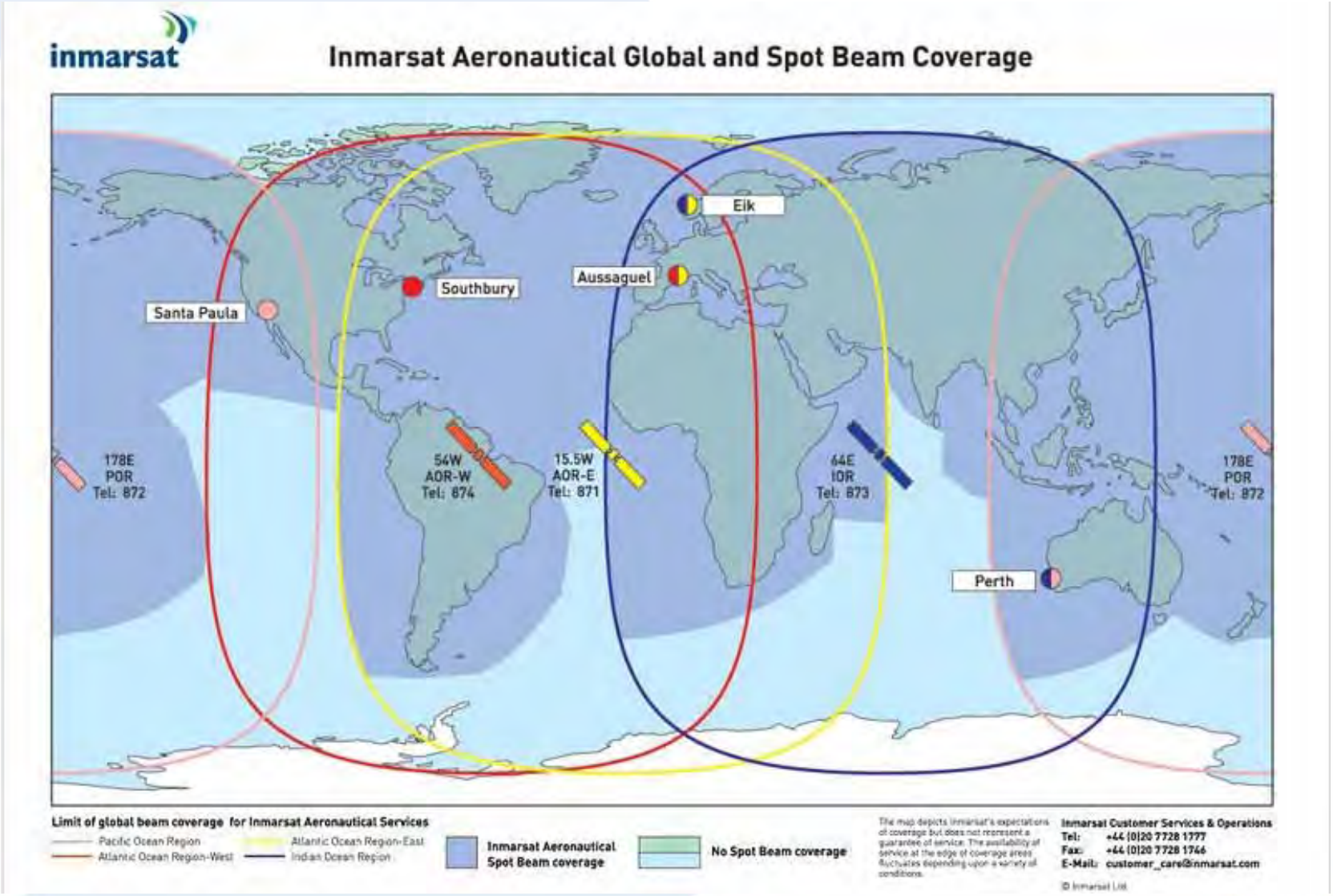
ARINC

DEDICATION BEYOND EXPECTATION

ARINC/Vizada Partnership

- ARINC is partnered with Vizada (formerly Telenor Satellite Services) the only owner-operator of a global Inmarsat four-ocean region service
- Both companies continue to invest in service enhancements to accommodate future business growth
  - Aero I/H+ Capital Program
  - Inmarsat CN94 GES Upgrade Program

GES Coverage Map



Inmarsat CN94 Update (Current I-3 Satellites)

- Inmarsat mandated change notice
  - Enhancement provides additional capacity to the satellite network for future traffic growth
  - Prevents Ground Earth Station (GES) equipment obsolescence

- Vizada/ARINC Implementation Schedule
  - Eik, Norway GES CN94 upgraded on October 4th, 2007
  - Santa Paula, California GES CN94 upgraded on November 8th, 2007
  - Vizada and ARINC cutover and support teams are actively monitoring the GESs

Planned Improvements

- New GES Software release to address post CN 94 issues expected next week
  - Thrane & Thrane are currently testing s/w release for implementation within the next few weeks
- This software upgrade will significantly improve GES performance
- ARINC is coordinating with Vizada and Inmarsat to improve real time service monitoring to enhance Advisory Notifications
- Additionally, as a result of FANS SIT (Satellite Improvement Team) analysis, ARINC recommends all Classic Aero users to implement the 10.5kbps logon channel if avionic is capable (Aero H/H+)

FANS SIT

- ARINC is a member of the FANS Satellite Improvement Team (FANS SIT)
- A large majority of Inmarsat outages are due to momentary resets of components in the GES
- The FANS SIT has identified solutions to these and other significant issues

FANS SIT

- Generating a cost/benefit matrix to assist in determining best value path for I3 performance improvement
- Enhancement of the current I3 GES's is contingent upon Thrane & Thrane continuing support
- In development of a common GES ICD (Interface Control Document) for Classic Service on Inmarsat's I4 Service Access Stations (SAS)
  - I4 SAS's will implement one common set of air/ground equipment
  - All CSP's will access classic I4 service via this interface
- Additionally, the FANS SIT is evaluating back-up scenarios for the I3 and I4 classic Inmarsat services

Summary

- ARINC, partnered with Vizada, is committed to providing highly reliable and qualitative satellite services
- ARINC continually invests in programs to enhance satcom infrastructure in supporting customer operational requirements
  - Quality of Service (QoS)
  - Avionics Qualification Program (AQP)